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# WAR MACHINE

An ORBIS Publication

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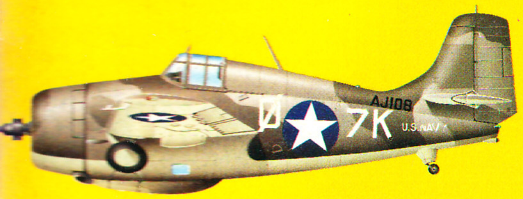
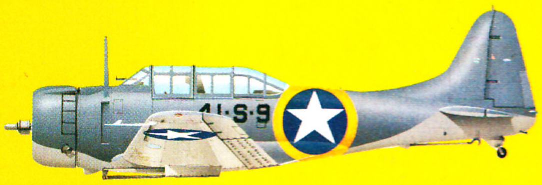
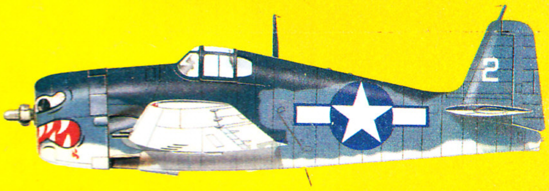


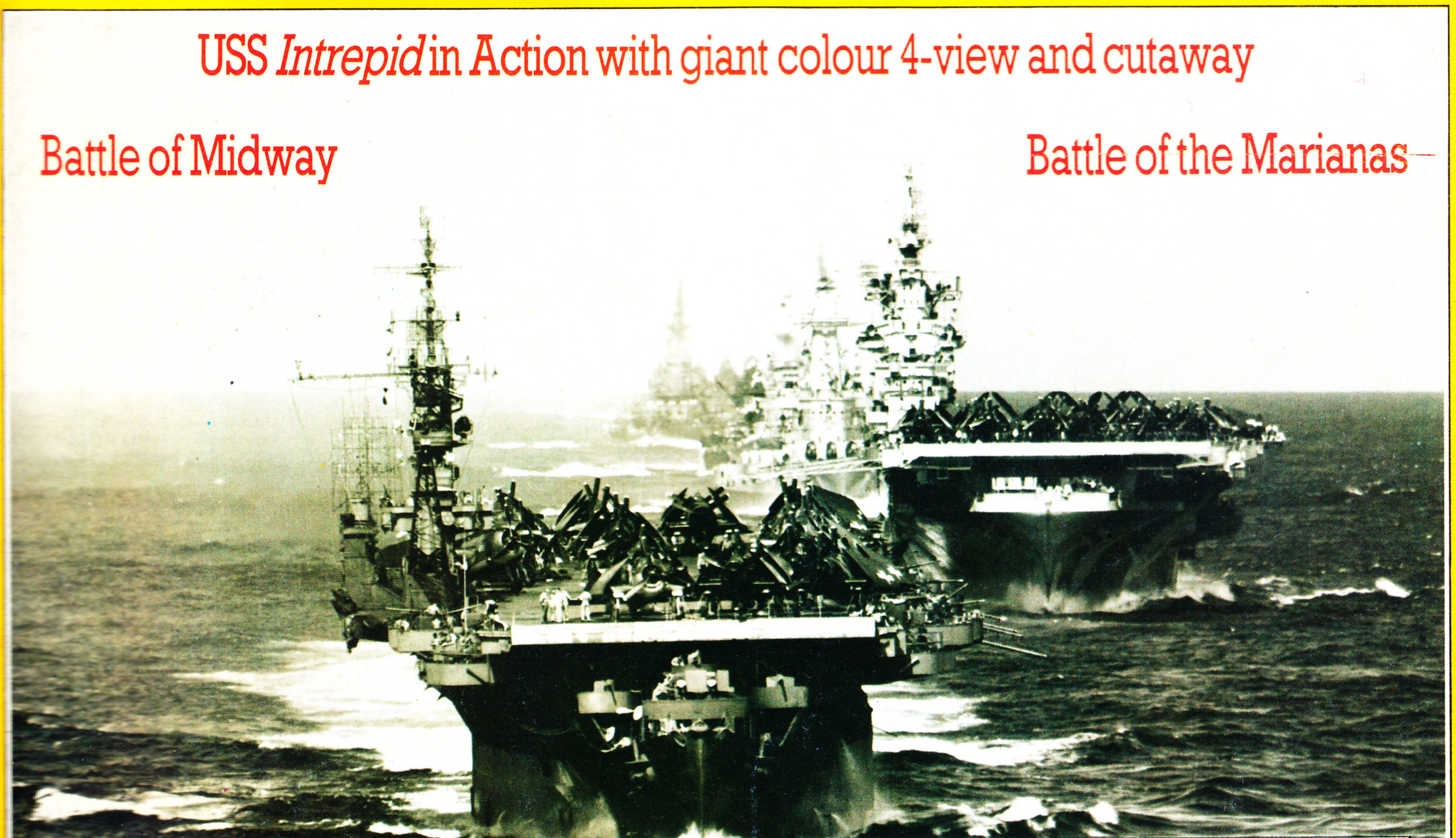




## USS *Intrepid* in Action with giant colour 4-view and cutaway

## Battle of Midway

## Battle of the Marianas



## Armed Forces of the World: Jordan

## A fully illustrated guide to American Aircraft Carriers of the Pacific War

# WAR MACHINE

Volume 1 Issue 4

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### Armed Forces of the World

Jordan iii

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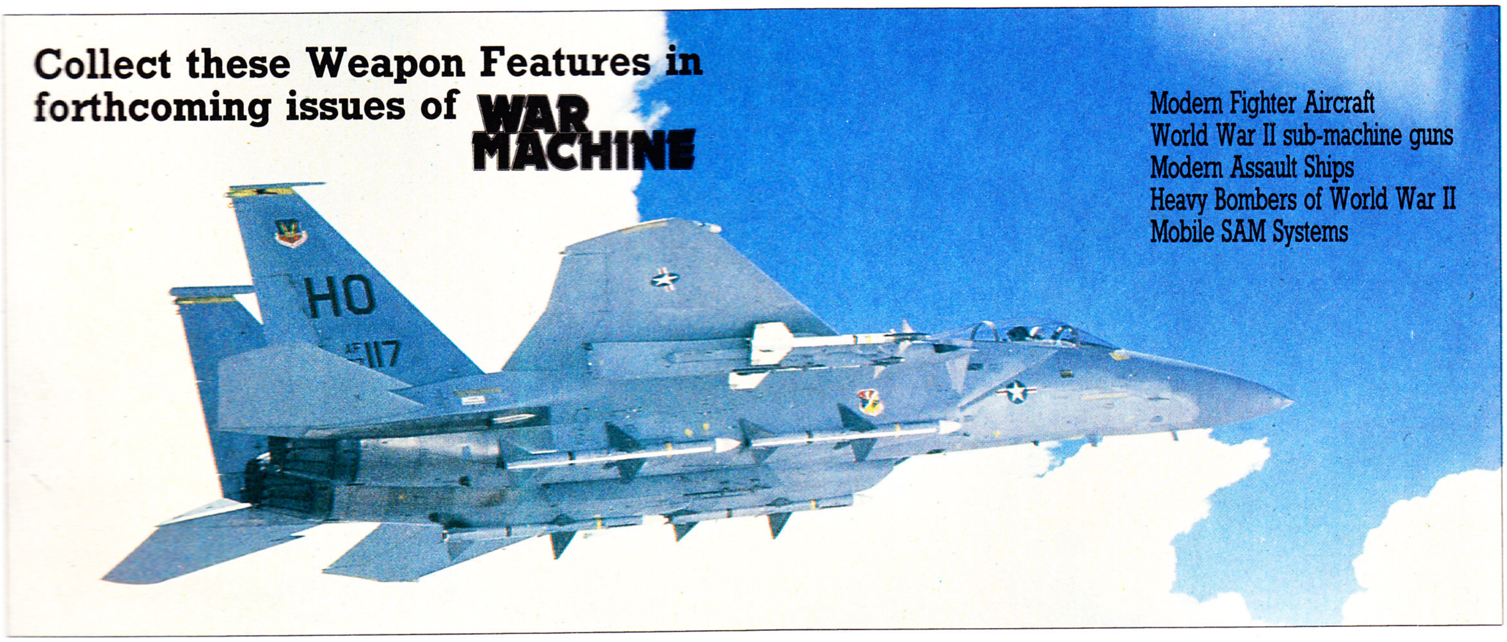

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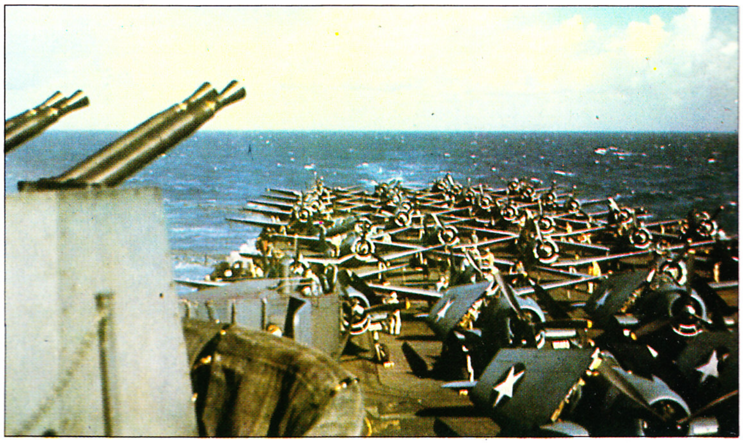
# The US Pacific Carrier Fleet 1941-5

***Only the enormous industrial capacity of the United States could have produced the carrier task forces which broke the Japanese fleet. By the end of the war 15 'Essex'-class carriers were in service, with another 11 in construction. In addition numerous light carriers (CVL) had been built, together with nearly 80 escort carriers (CVE). These 'Jeep' carriers provided vital anti-submarine cover, as well as aircraft transport, convoy escorts and fleet carrier supply during the advance on Japan. The table below records the actions of the carriers that served in the Pacific war. Those ships listed in bold are featured in this publication.***



*Aboard USS* Essex *in May 1943. It was the advent of* Essex *and her sister ships which finally swung the Pacific war in favour of the United States.*

| CARRIER | | COMMISSIONED | RECORD |
|---|---|---|---|
| **AV-3**<br>(EX CV-1) | **LANGLEY** | (AV) 1937<br>(CV) 1922 | Sunk by bombing off Java 27/2/42 |

### 'Lexington' class

| | | | |
|---|---|---|---|
| **CV-2** | **LEXINGTON** | 14.12.27 | Pacific raids 1942. Sunk at Coral Sea 8/5/42 |
| **CV-3** | **SARATOGA** | 16.11.27 | Torpedoed off Hawaii 11/1/42, Guadalcanal, torpedoed Solomons 31/8/42, E. Solomons, Bougainville, Gilbert Is, Kwajalein, Eniwetok, Pacific raids 1944, operated with British E. Fleet 1944, severe damage (Kamikaze) Iwo Jima 21/2/45 |

### 'Yorktown' class

| | | | |
|---|---|---|---|
| **CV-5** | **YORKTOWN** | 30.9.37 | Pacific raids 1942, damaged at Coral Sea, sunk at Midway 7/6/42 |
| **CV-6** | **ENTERPRISE** | 12.5.38 | Pearl Harbor (aircraft only), Midway, Guadalcanal landings, Kwajalein, Truk raid, Hollandia, Saipan, Philippine Sea, Palau, Leyte, Iwo Jima, damaged twice (Kamikaze) at Okinawa 11/4/45 and 13/4/45 |
| **CV-8** | **HORNET** | 20.10.41 | Doolittle raid 18/4/42, Midway, sunk at Santa Cruz 27/10/42 |

### 'Wasp' class

| | | | |
|---|---|---|---|
| **CV-7** | **WASP** | 25.4.40 | Guadalcanal landings, sunk at E. Solomons 15/9/42 |

### 'Essex' class

| | | | |
|---|---|---|---|
| **CV-9** | **ESSEX** | 31.12.42 | Bougainville, Gilbert Is, Kwajalein, Truk raid, Marianas, Palau, Leyte, Iwo Jima, damaged (Kamikaze) 25/11/44 |
| CV-10 | YORKTOWN | 15.4.43 | Gilbert Is, Kwajalein, Truk raid, Hollandia, Marianas, Iwo Jima |
| **CV-11** | **INTREPID** | 16.8.43 | Kwajalein, torpedoed Truk raid, Palau, Leyte, severe damage (Kamikaze) off Luzon 25/11/44 and also off Okinawa 16/4/45 |
| CV-12 | HORNET | 29.11.43 | Marianas, Palau, Leyte, Iwo Jima |
| CV-13 | FRANKLIN | 31.1.44 | Guam, Palau, Leyte, damaged (Kamikaze) Luzon 15/10/44 and 30/10/44, severe damage (bombs) off Kyushu 19/3/45 |
| CV-14 | TICONDEROGA | 8.5.44 | Palau, Leyte, severe damage (Kamikaze) Formosa 21/1/45 |
| CV-15 | RANDOLPH | 9.10.44 | Iwo Jima |
| CV-16 | LEXINGTON | 17.2.43 | Gilbert Is, Hollandia, torpedoed off Kwajalein 4/12/43, Marianas, Palau, Leyte, (as flagship), damage (Kamikaze) Luzon 5/11/44, Iwo Jima |
| CV-17 | BUNKER HILL | 20.5.43 | Bougainville, Gilbert Is, Kwajalein, Truk raid, Hollandia, Marianas, Palau, Leyte, Iwo Jima, severe damage (Kamikaze) Okinawa 11/4/45 |
| CV-18 | WASP | 24.11.43 | New Guinea, Marianas, Palau, Leyte, Iwo Jima, damaged (bomb) off Kyushu 19/3/45 |
| CV-19 | HANCOCK | 15.4.44 | Philippines, Iwo Jima, damaged (explosion) 21/1/45 and again (Kamikaze) 7/4/45 |
| CV-20 | BENNINGTON | 6.8.44 | Iwo Jima |
| CV-31 | BON HOMME RICHARD | 26.11.44 | Raids on Japan |
| CV-36 | ANTIETAM | 28.1.45 | Present at Japanese surrender in Tokyo Bay |
| CV-38 | SHANGRI-LA | 15.9.44 | Raids 1945 |

### 'Independence' class

| | | | |
|---|---|---|---|
| CVL-22 | INDEPENDENCE | 1.1.43 | Bougainville, severe damage (torpedo) Gilbert Is 20/11/43, Palau, Leyte |
| **CVL-23** | **PRINCETON** | 25.2.43 | Bougainville, Gilbert Is, Kwajalein, Eniwetok, Hollandia, Marianas, Palau, sunk at Leyte 25/10/44 |
| CVL-24 | BELLEAU WOOD | 31.5.43 | Gilbert Is, Kwajalein, Truk road, New Guinea, Marianas, Palau, severe damage (Kamikaze) at Leyte 30/10/44, Iwo Jima |
| CVL-25 | COWPENS | 28.5.43 | Gilbert Is, Kwajalein, Truk raid, New Guinea, Marianas, Palau, Leyte, Philippines, Iwo Jima |
| CVL-26 | MONTEREY | 17.6.43 | Gilbert Is, Kwajalein, Truk raid, New Guinea, Marianas, Palau, Leyte |
| CVL-27 | LANGLEY | 31.8.43 | Kwajalein, Eniwetok, Marianas, Palau, Leyte, Philippines, Iwo Jima |
| CVL-28 | CABOT | 24.7.43 | Kwajalein, Truk raid, Philippine Sea, Guam, Palau, Leyte, Philippines, Iwo Jima |
| CVL-29 | BATAAN | 17.11.43 | Hollandia, Marianas |
| CVL-30 | SAN JACINTO | 15.12.43 | Marianas, Palau, Leyte, Philippines, Iwo Jima |

### 'Long Island' class

| | | | |
|---|---|---|---|
| CVE-1 | LONG ISLAND | 2.6.41 | Aircraft transport, Guadalcanal |

### 'Bogue' class

| | | | |
|---|---|---|---|
| **CVE-9** | **BOGUE** | 26.9.42 | ASW operations Atlantic, transport and supply Pacific to end of war |
| CVE-12 | COPAHEE | 15.6.42 | Aircraft transport to combat areas 1942–45 |
| CVE-16 | NASSAU | 20.8.42 | Marshall Islands, otherwise aircraft transport |
| CVE-18 | ALTAMAHA | 15.9.42 | ASW operations, supply and transport |
| CVE-20 | BARNES | 20.2.43 | Aircraft transport to combat areas |
| CVE-23 | BRETON | 12.4.43 | Aircraft transport |
| CVE-31 | PRINCE WILLIAM | 9.4.43 | Aircraft transport (1943 and 44 in Pacific) |

### 'Sangamon' class

| | | | |
|---|---|---|---|
| **CVE-26** | **SANGAMON** | 25.8.42 | N. Africa, Gilbert Is, Kwajalein, Eniwetok, Marianas, damaged at Leyte 25/10/44, damaged (Kamikaze) Okinawa 4/5/45 |
| CVE-27 | SUWANEE | 24.9.42 | N. Africa, Gilbert Is, Kwajalein, Eniwetok, New Guinea, Saipan, damaged at Leyte 26/10/44, Okinawa |
| CVE-28 | CHENANGO | 19.9.42 | N. Africa, Gilbert Is, Kwajalein, Eniwetok, Saipan, Guam, Leyte, Okinawa |
| CVE-29 | SANTEE | 24.8.42 | N. Africa, Guam, severe damage at Leyte 25/10/44, Okinawa |

### 'Casablanca' class

| | | | |
|---|---|---|---|
| CVE-55 | CASABLANCA | 8.7.43 | Transport and training |
| CVE-56 | LISCOME BAY | 7.8.43 | Sunk (submarine) 24/11/43 in Solomons |
| CVE-57 | ANZIO | 27.8.43 | Makin, Kwajalein, New Guinea, Saipan, Guam |
| CVE-58 | CORREGIDOR | 31.8.43 | Gilbert Is, Marshall Is, New Guinea, Saipan, Guam |
| CVE-61 | MANILA BAY | 5.10.43 | Marshall Is, Kwajalein, Eniwetok, Kavieng, Solomons, Rabaul, Leyte, Philippines, damaged (Kamikaze) Lingayen 5/1/45 |
| CVE-62 | NATOMA BAY | 14.10.43 | Marshall Is, Kavieng, New Guinea, Leyte, Philippines, Iwo Jima, Okinawa, damaged (Kamikaze) 7/6/45 |
| **CVE-63** | **ST. LO** | 23.10.43 | Saipan, Palau, sunk (by Japanese fleet at Samar action) Leyte 25/10/44 |
| CVE-65 | WAKE ISLAND | 4.11.43 | Philippines, Iwo Jima, damaged (Kamikaze) Okinawa 3/4/45 |
| CVE-66 | WHITE PLAINS | 15.11.43 | Saipan, Rota, Tinian, Palau, damaged (gunfire and Kamikaze at Samar action) Leyte 29/10/44 |
| CVE-68 | KALININ BAY | 27.11.43 | Severe damage (Kamikaze and gunfire at Samar action) Leyte 25/10/44 |
| CVE-69 | KASAAN BAY | 4.12.43 | Pilot training and transport (after Atlantic Service) |
| CVE-70 | FANSHAW BAY | 9.12.43 | Saipan, damaged (bombs) Philippine Sea, damaged (gunfire at Samar action) Leyte 25/10/44 |
| CVE-71 | KITKUN BAY | 15.12.43 | Saipan, Tinian, Guam, damaged (Kamikaze – Samar action) Leyte 25/10/44 |
| CVE-72 | TULAGI | 21.12.43 | Iwo Jima, Okinawa |
| CVE-73 | GAMBIER BAY | 28.12.43 | Saipan, Tinian, Palau, sunk (gunfire) at Leyte 25/10/44 |
| CVE-74 | NEHENTA BAY | 3.1.44 | Saipan, Guam, Palau, damaged (typhoons) December 1944, Okinawa |
| CVE-75 | HOGGATT BAY | 11.1.44 | Marianas, Philippines, Okinawa |
| CVE-76 | KADASHAN BAY | 18.1.44 | Palau, Leyte, severe damage (Kamikaze) Lingayen 8/1/45 |
| CVE-77 | MARCUS ISLAND | 26.1.44 | Palau, Leyte, Admiralty Islands |
| CVE-78 | SAVO ISLAND | 3.2.44 | Pelelieu, Leyte, damage (Kamikaze) in Philippines 5/1/45, Okinawa |
| CVE-79 | OMMANEY BAY | 11.2.44 | Palau, Leyte, Philippines, sunk (by own side after Kamikaze damage) 4/1/45 |
| CVE-80 | PETROF BAY | 18.2.44 | Leyte, Okinawa |
| CVE-82 | SAGINAW BAY | 2.3.44 | Palau, Leyte, Okinawa |
| CVE-83 | SARGENT BAY | 9.3.44 | Philippines, Iwo Jima, Okinawa |
| CVE-84 | SHAMROCK BAY | 15.3.44 | Philippines, Iwo Jima, Okinawa |
| CVE-85 | SHIPLEY BAY | 21.3.44 | Okinawa |
| CVE-86 | SITKOH BAY | 28.3.44 | Transport and supply |
| CVE-87 | STEAMER BAY | 4.4.44 | Transport and supply |
| CVE-88 | CAPE ESPERANCE | 9.4.44 | Transport and supply |
| CVE-89 | TAKANIS BAY | 15.4.44 | Transport and supply |
| CVE-90 | THETIS BAY | 21.4.44 | Transport and supply |
| CVE-91 | MAKASSAR STRAIT | 29.4.44 | Transport and supply |
| CVE-92 | WINDHAM BAY | 3.5.44 | Training and transport |
| CVE-93 | MAKIN ISLAND | 9.5.44 | Leyte, Iwo Jima, Okinawa |
| CVE-94 | LUNGA POINT | 14.5.44 | Philippines, damaged (Kamikaze) at Iwo Jima, Okinawa |
| CVE-95 | BISMARCK SEA | 20.5.44 | Sunk (Kamikaze) Iwo Jima 21/2/45 |
| CVE-96 | SALAMAUA | 26.5.44 | Philippines, severe damage (Kamikaze) Lingayen 13/1/45, Okinawa |
| CVE-97 | HOLLANDIA | 1.6.44 | Transport and supply |
| CVE-98 | KWAJALEIN | 7.6.44 | Transport and supply |
| CVE-99 | ADMIRALTY ISLANDS | 13.6.44 | Transport and supply |
| CVE-100 | BOUGAINVILLE | 18.6.44 | Transport and supply |
| CVE-101 | MATANIKAU | 24.6.44 | Transport and supply |
| CVE-102 | ATTU | 30.6.44 | Transport and supply |
| CVE-103 | ROI | 6.7.44 | Transport and supply |
| CVE-104 | MUNDA | 8.7.44 | Transport and supply |

### 'Commencement Bay' class

| | | | |
|---|---|---|---|
| CVE-106 | BLOCK ISLAND | 30.12.44 | Okinawa |
| CVE-107 | GILBERT ISLANDS | 5.2.44 | Okinawa |
| CVE-109 | CAPE GLOUCESTER | 5.3.44 | Air cover for MW Vessels |

# American Aircraft Carriers of the Pacific War

*The full strength of the American Fast Carrier Task force in the Pacific: the light fleet carrier* Langley *leads the big carrier* Ticonderoga *and three battleships.*

***The Pacific War was to a large extent the war of the aircraft carrier; from Pearl Harbor to Okinawa, it was the effective use of the carrier forces which proved decisive. For the first time, battles were fought with hundreds of miles of ocean between the combatants.***

From the moment that Japanese carrier aircraft struck at the US Pacific Fleet's anchorage on 7 December 1941, a new era in naval warfare was born. Although naval air power had already proved its ability to strike at an enemy fleet sheltering in its own harbours, Pearl Harbor was the dawn of carrier warfare across the broad oceans, in a way that pre-war theorists had never imagined.

The reason for this lay in the fact that the battleships with which aircraft-carriers had been meant to fight were now sunk or disabled. For at least six months the US Pacific Fleet could only take the offensive with its carriers, and so the concept of the fast carrier task force was created, using the carriers' dive-bombers and torpedo-bombers as long-range substitutes for the 406-mm (16-in) gun. Because the tactics and the aircraft were comparatively primitive, the first attempts by the US Navy to carry the war to the Japanese were barely effective, and there was little that could be done to stop the Japanese carriers from overrunning the Philippines and the Dutch East Indies. The USS *Hornet* flew off a daring raid by North American B-25 Mitchell bombers against Tokyo in April 1942, and a series of pinprick raids was made on Wake Island and other outposts.

The first pitched battle, in the Coral Sea, was fought in May 1942 to stop the Japanese from gaining a foothold in Port Moresby, New Guinea. It cost the Americans one of their biggest carriers, the USS *Lexington*, but the amphibious operation was called off after the small carrier *Shoho* was sunk. What distinguished the battle was the fact that the opposing fleets never came within sight of one another: it was the first carrier-versus-carrier battle.

A rash attempt by the Japanese to capture Midway Island brought on the next battle in June 1942, but superior American intelligence and much improved tactics made the Battle of Midway decisive. The Japanese lost their four front-line carriers in quick succession, and with them the best-trained aircrews in the world. In the months that followed the Japanese showed little understanding of that loss, for they squandered the lives of their carrier aircrews faster than they could be replaced. Thus, when the Allies took the offensive by landing in the Solomons, the Battles of the Eastern Solomons and the Santa Cruz Islands thinned the ranks of Japanese naval pilots to a fatal degree. In contrast the US Navy was soon replacing its lost pilots with thousands of new aircrew and a new generation of more powerful aircraft.

In June 1944 the US assault on the Marianas brought on another great carrier battle, the Philippine Sea, and this destroyed what was left of the Japanese naval aircrews. The 'Great Marianas Turkey Shoot' saw the slaughter of hundreds of semi-skilled pilots, and when four months later the remnants of the Imperial Navy were flung into the Battle of Leyte Gulf there were hardly any pilots left for the carriers. From October 1944 the survivors of the once-mighty force of Japanese carriers were sunk at its moorings in Japan, unable to move because of the total lack of fuel.

***F6F Hellcats waiting for orders to start engines, alongside the island of the* Yorktown *(CV.10). She was the second of the 'Essex' class, and was commissioned in April 1943. Only three months later she was on her way to the Pacific.***

USA

## USS *Langley*

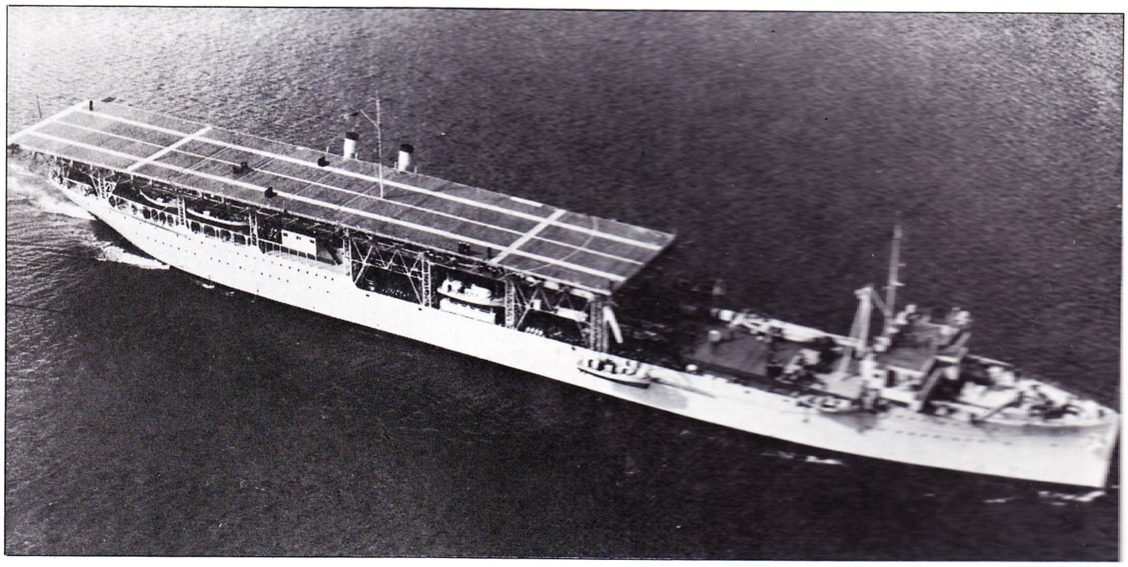
The potential of naval aviation was so clearly seen at the end of World War I that the US Navy wanted to press ahead with the construction of aircraft carriers. But to gain practical experience before building new ships it was essential to carry out experiments, and the quickest and cheapest way was to convert an existing ship.

The big fleet collier *Jupiter* (AC.3) was taken in hand in March 1920. A month later she was renamed USS ***Langley*** (CV.1) and started trials in July 1922. The ship which emerged was flush-decked, with two hinged funnels on the port side. The former coal holds had been converted to workshops, accommodation and storerooms, while the former upper deck was now the hangar. The biggest drawback to the *Langley* was her low speed, for the 5335-kW (7,150-shp) turbo-electric machinery was badly underpowered. In service the *Langley* could only make 14 knots, which was some 7 knots below the speed of the battle fleet. However in spite of this handicap she served with the fleet, and for five years she played the role which was to be taken over so successfully by the *Lexington* and *Saratoga* from 1928 onwards.

Although originally designed to operate 24 aircraft, her capacious hangar allowed a maximum of 33 to be accommodated. She did not stop operating aircraft until 1936, when she was converted to a seaplane carrier and redesignated AV.3. After a short refit she reappeared in April 1937 with a short flight deck, as the forward part had been removed.

One most important contributions made to naval aviation by the *Langley* was to test various systems of arrester gear. When she was first commissioned she had a British system of longitudinal wires, which were intended to engage hooks in the landing gear of the aircraft, and prevent it from slewing from side to side. However, the US Navy added a back-up system of transverse wires, whose retarding action was achieved by hanging sand-filled shellcases on the ends. This system (refined into a proper hydraulic arrester system) ultimately proved better, and is the basis of all modern carrier landings. Another innovation was a pair of flush-mounted pneumatic catapults on the flight deck; intended for seaplanes, they later proved that they could speed up the launching of conventional aircraft, and like the arrester gear, this procedure is still standard today.

The veteran 'Covered Wagon' spent her short war service as a humble aircraft transport. On 27 February 1942 a group of Japanese naval bombers operating from Bali caught her en route for Tjilatjap in Java, and sank her with five bombs.



*The old Langley, with the forward part of her flight deck removed, served as a seaplane carrier from 1936. In her short wartime career, the first US aircraft carrier humbly acted as an aircraft transport until sunk by Japanese bombers in February 1942.*

### Specification

**USS *Langley* (CV.1)**
**Displacement:** 11,050 tons standard, 14,700 tons full load
**Dimensions:** length 165.3 m (542 ft 4 in) overall; beam 19.96 m (65 ft 6 in); draught 7.32 m (24 ft 0 in)
**Machinery:** 1-shaft steam turbo-electric delivering 5335 kW (7,150 shp)
**Speed:** 14 knots
**Armour:** none
**Armament:** four 127-mm (5-in) guns
**Aircraft:** (1923) 30 fighters
**Complement:** 410 officers and enlisted men

---

USA

## USS *Lexington*

Under the Washington Treaty the US Navy was allowed to convert two incomplete 33,000-ton battle-cruisers into aircraft-carriers. The ships chosen were the *Lexington* and *Saratoga*, and the opportunity was taken to incorporate many ideas from a cancelled carrier design of 1919. When completed in 1925 the USS ***Lexington*** (CV.2) was a remarkable ship, with a massive 'island' superstructure on the starboard side, flanked by two twin 203-mm (8-in) gun turrets forward and two aft.

At the time of Pearl Harbor the ship was delivering aircraft to the US Marines on Midway Island, and so escaped the disaster. She was hurriedly refitted, losing her cumbersome 203-mm (8-in) guns and four 127-mm (5-in) guns, although she received a few single 20-mm Oerlikon guns to supplement her meagre close-range anti-aircraft armament.

The *Lexington*'s first operation was an abortive attempt to relieve Wake Island immediately after Pearl Harbor, but at the end of January 1942 she provided distant cover for a raid on the Marshall Islands and thereafter saw limited action in the South West Pacific. Not until she was joined by the newer carrier *Yorktown* in March 1942 did the *Lexington* really begin to flex her muscles.

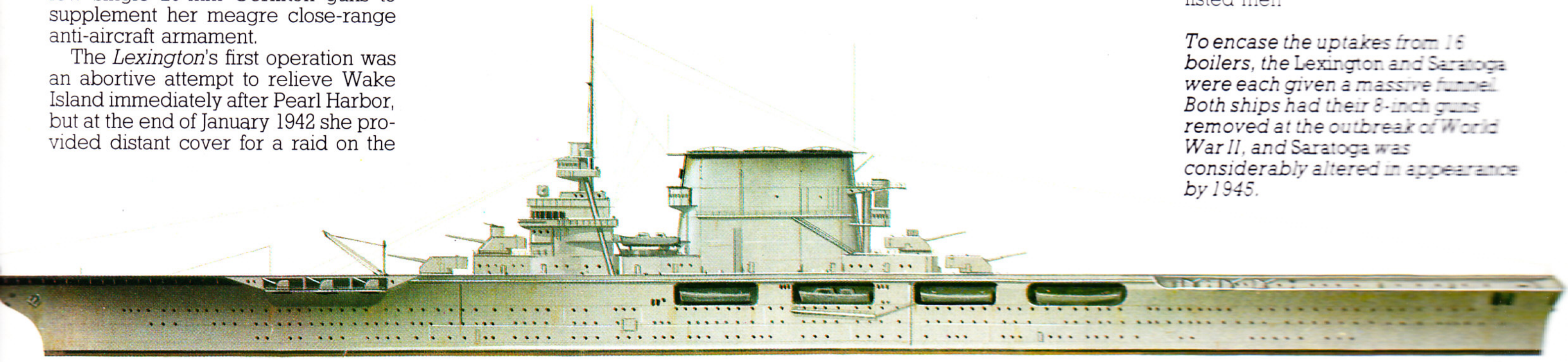
After a short refit at Pearl Harbor the ship returned to the Coral Sea, where the Japanese carriers were supporting an attack on Port Moresby, New Guinea. On 8 May her Douglas SBD Dauntless dive-bombers attacked the *Shokaku* and *Zuikaku*, but without scoring any hits. Unfortunately while this attack was in progress a Japanese counter-strike succeeded in hitting the *Lexington* with two torpedoes on the port side, and the ship also suffered two bomb hits and several near misses. The 'whip' of the 270.7-m (888-ft) hull from the explosions ruptured the aviation gasoline tanks, so that even after the fires had been extinguished the lethal vapour continued to seep through the ship. About an hour after the attack a chance spark ignited this vapour, and the ship began to suffer a series of devastating internal explosions. Six hours after the first hit the order was given to abandon ship, and after escorting destroyers had rescued as many of her crewmen as possible the blazing wreck was torpedoed. Surprisingly only 216 lives out of 2,951 were lost.

In her short war career the *Lexington* had failed to inflict severe damage on the enemy, largely as a result of the inexperience of her air group and because of faulty tactical US Navy doctrine, and the loss of a big carrier was a heavy price to pay for the Coral Sea victory.

### Specification

**USS *Lexington* (CV.2)**
**Displacement:** 36,000 tons standard, 47,700 tons full load
**Dimensions:** length 270.66 m (888 ft 0 in) overall; beam 39.62 m (130 ft 0 in) over flight deck; draught 9.75 m (32 ft 0 in)
**Machinery:** 4-shaft steam turbo-electric delivering 156660 kW (210,000 shp)
**Speed:** 34 knots
**Armour:** belt 152 mm (6 in); flight deck 25 mm (1 in); main deck 51 mm (2 in); lower deck 25–76 mm (1–3 in); turrets 38–76 mm (1½–3 in); barbettes 152 mm (6 in)
**Armament:** (in 1942) eight 127-mm (5-in) AA, 30 20-mm AA and six quadruple 27.94-mm (1.1-in) AA guns
**Aircraft:** (1942) 22 fighters, 36 dive-bombers and 12 torpedo-bombers
**Complement:** 2,951 officers and enlisted men

*To encase the uptakes from 16 boilers, the* Lexington *and* Saratoga *were each given a massive funnel. Both ships had their 8-inch guns removed at the outbreak of World War II, and* Saratoga *was considerably altered in appearance by 1945.*



USA

# USS *Saratoga*

Like her sister *Lexington*, the USS *Saratoga* (CV.3) was launched in 1925 after three years of conversion from an incomplete battle-cruiser hull. Like her sister she played a major role in developing the concept of the fast carrier task force, and from 1928 the two ships took part in the annual 'Fleet Problem' or war game of the Pacific Fleet.

At the time of Pearl Harbor the 'Sara' was back at San Diego on the US west coast undergoing a short refit, but she sailed shortly afterwards and took part with her sister 'Lex' in an abortive attempt to relieve Wake Island. During her refit the four twin 203-mm (8-in) turrets were removed, and in their place she received four twin 127-mm (5-in) dual-purpose mountings. She was torpedoed by a Japanese submarine off Hawaii, on 11 January 1942, and needed four months of repairs.

The 'Sara' was used to ferry fresh aircraft out to the Central Pacific, and so missed the Battle of Midway, but she was a welcome reinforcement by 8 June, the day after the sinking of the *Yorktown*. Her fighters and dive-bombers were given the task of softening up the defences of Guadalcanal on 7 August 1942 before the big amphibious landing by the US Marines. The Japanese responded vigorously to this challenge, and by 20 August a powerful carrier task force was nearing the Eastern Solomons.

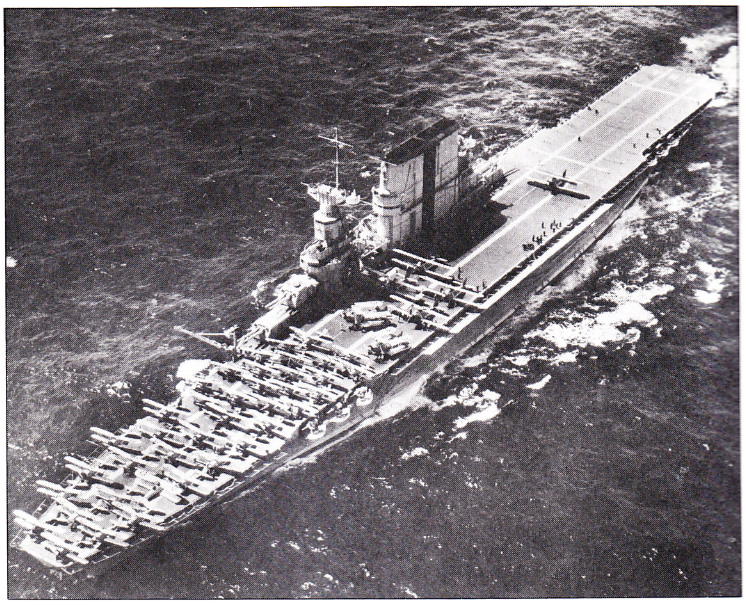
The *Saratoga, Enterprise* and *Wasp* were heavily engaged in the Battle of the Eastern Solomons, but the 'Sara' escaped lightly. Not until 31 August did she sustain damage, when she was torpedoed by the submarine *I-68* just after dawn. The carrier was not badly damaged by the hit, in spite of having one boiler room flooded and another partly flooded, but an electrical failure soon put her machinery out of action. Two hours later she got back limited power, and reached Pearl Harbor six days later; repairs took six weeks to complete.

In 1943-4 the *Saratoga* took part in the great 'island-hopping' drive across the Pacific, and in 1944 was detached to the East Indies, where she cooperated with the British and Free French in attacking Japanese positions in Java and Sumatra. On 21 February 1945 she was hit by a *kamikaze* while supporting the landings on Iwo Jima. By now she was showing her age, and although repaired was restricted to training duties at Pearl Harbor.

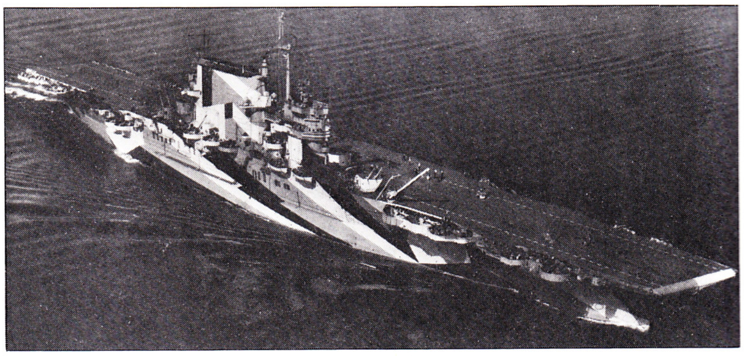
On 25 July 1946 the stripped hull of the *Saratoga was* sunk in Bikini Atoll during a series of nuclear tests.

### Specification

**USS *Saratoga* (CV.3)**
**Displacement:** 36,000 tons standard, 47,700 tons full load
**Dimensions:** length 270.66 m (888 ft 0 in) overall; beam 32.2 m (105 ft 6 in) hull; draught 9.75 m (32 ft 0 in)
**Machinery:** 4-shaft steam turbo-electric delivering 156660 kW (210,000 shp)
**Speed:** 34 knots
**Armour:** belt 152 mm (6 in); flight deck 25 mm (1 in); main deck 51 mm (2 in); lower deck 25–76 mm (1–3); barbettes 152 mm (6 in)
**Armament:** (in 1945) eight twin 127-mm (5-in) dual-purpose, 24 quadruple 40-mm Bofors AA, two twin 40-mm AA and 16 20-mm AA guns
**Aircraft:** (1945) 57 fighters and 18 torpedo-bombers
**Complement:** (1945) 3,373 officers and enlisted men



***The USS* Saratoga *(CV.3) in March 1932 with a large part of her air group at the forward end of the flight deck. She and her sister 'fought' each other in annual manoeuvres.***



***'Sara' in September 1944, painted in Camouflage Measure 32/11A. Twin 5-inch and light AA guns have replaced the 8-inch guns. Despite her age she was still the biggest US carrier, if not the most capacious.***

USA

# USS *Yorktown*

The USS **Yorktown** (CV.5) was the lead-ship of a new class of aircraft-carrier authorized out of President Roosevelt's Public Works Administration, the Federal unemployment relief agency. She and her sister *Enterprise* (CV.6) were authorized in 1933, and were followed by the *Hornet* (CV.8) five years later.

The design was a development of that of the *Ranger*, with an 'open' hangar rather than the 'closed' type of the *Lexington* and *Saratoga*, to allow up to 80 aircraft to be carried. This arrangement proved highly successful, and formed the basis for the even more successful 'Essex' class.

The ship was commissioned in September 1937, and was hurriedly transferred to the Pacific after Pearl Harbor. Under Rear Admiral Frank J. Fletcher she was sent to the South West Pacific in the spring of 1942 and took part in the Battle of the Coral Sea. Her Air Group 5, comprising 20 Grumman F4F Wildcat fighters, 38 Douglas SBD Dauntless dive-bombers and 13 Douglas TBD Devastator torpedo-bombers, played a major role in the battle, sinking the light carrier *Shoho* in a brilliant attack lasting only 10 minutes. On the next day, 8 May, her dive-bombers inflicted damage on the carrier *Zuikaku*, but in return a force of Nakajima B5N 'Kate' torpedo-bombers and Aichi D3A 'Val' dive-bombers penetrated a dense screen of fighters and gunfire to score a devastating hit on the flight deck.

The bomb went through three decks before exploding, and numerous fires were started. The damage control parties brought the fires under control, and the ship was able to return to Pearl Harbor for repairs.

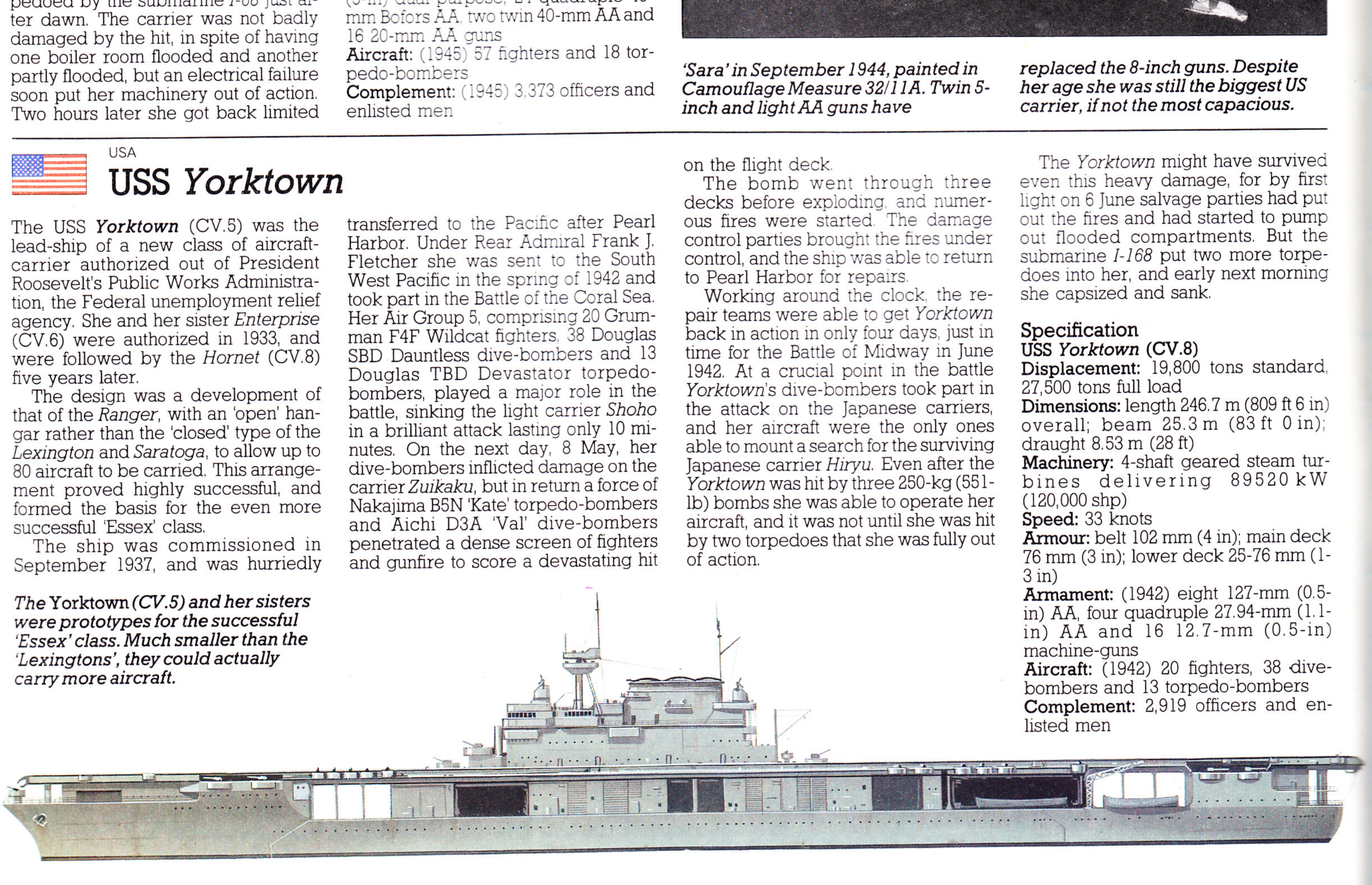
Working around the clock, the repair teams were able to get *Yorktown* back in action in only four days, just in time for the Battle of Midway in June 1942. At a crucial point in the battle *Yorktown*'s dive-bombers took part in the attack on the Japanese carriers, and her aircraft were the only ones able to mount a search for the surviving Japanese carrier *Hiryu*. Even after the *Yorktown* was hit by three 250-kg (551-lb) bombs she was able to operate her aircraft, and it was not until she was hit by two torpedoes that she was fully out of action.

The *Yorktown* might have survived even this heavy damage, for by first light on 6 June salvage parties had put out the fires and had started to pump out flooded compartments. But the submarine *I-168* put two more torpedoes into her, and early next morning she capsized and sank.

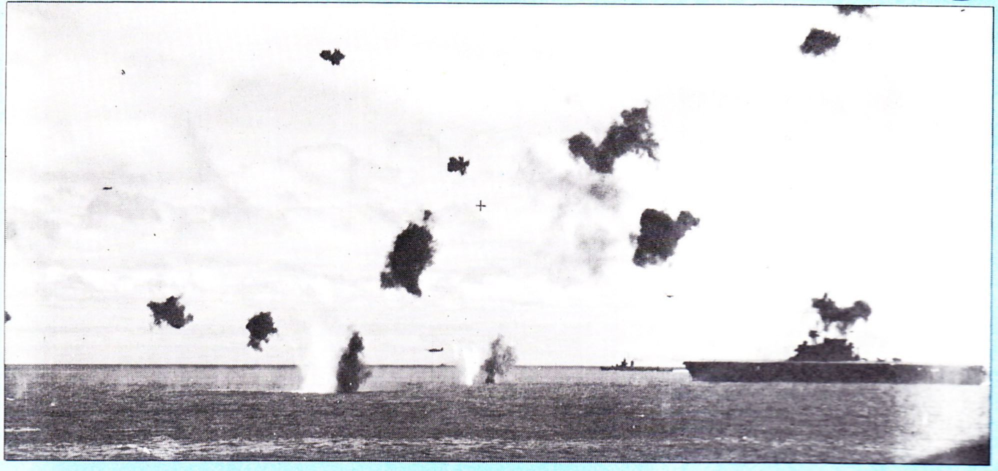
### Specification

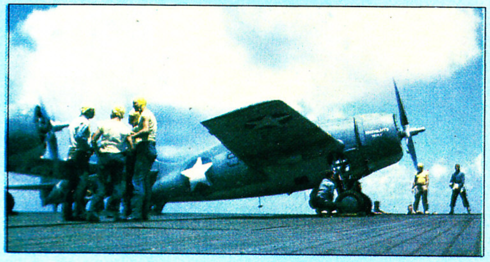
**USS *Yorktown* (CV.8)**
**Displacement:** 19,800 tons standard, 27,500 tons full load
**Dimensions:** length 246.7 m (809 ft 6 in) overall; beam 25.3 m (83 ft 0 in); draught 8.53 m (28 ft)
**Machinery:** 4-shaft geared steam turbines delivering 89520 kW (120,000 shp)
**Speed:** 33 knots
**Armour:** belt 102 mm (4 in); main deck 76 mm (3 in); lower deck 25-76 mm (1-3 in)
**Armament:** (1942) eight 127-mm (0.5-in) AA, four quadruple 27.94-mm (1.1-in) AA and 16 12.7-mm (0.5-in) machine-guns
**Aircraft:** (1942) 20 fighters, 38 dive-bombers and 13 torpedo-bombers
**Complement:** 2,919 officers and enlisted men

***The* Yorktown *(CV.5) and her sisters were prototypes for the successful 'Essex' class. Much smaller than the 'Lexingtons', they could actually carry more aircraft.***



# The Battle of Midway





*Above: Flight deck crew preparing for take-off. Their efficiency determined the number of sorties which could be flown from each carrier.*

*Left: The* Yorktown *heels as she turns to port to avoid Japanese dive-bombers during the Battle of Midway. A destroyer keeps station on her starboard bow.*

The attack on the Solomon Islands and New Guinea was only a phase in the grand strategic design to maintain a vast defensive perimeter of Japanese bases across the Pacific. As the American carriers had not been caught at Pearl Harbor and as the wily Admiral Chester W. Nimitz had refused to be drawn into any of the traps laid for the Pacific Fleet, his opponent Admiral Isoroku Yamamoto determined to force his hand.

The objective was to be Midway Island, halfway across the Pacific and vital as an outpost in the defences of Pearl Harbor. Yamamoto was aware that if he did not succeed in eliminating the Pacific Fleet before the end of 1942 the USA would get stronger and stronger until she could overwhelm Japan by sheer industrial might. Midway, he was convinced, was a prize for which Nimitz must fight, and he planned to draw the Americans into a cunningly baited trap.

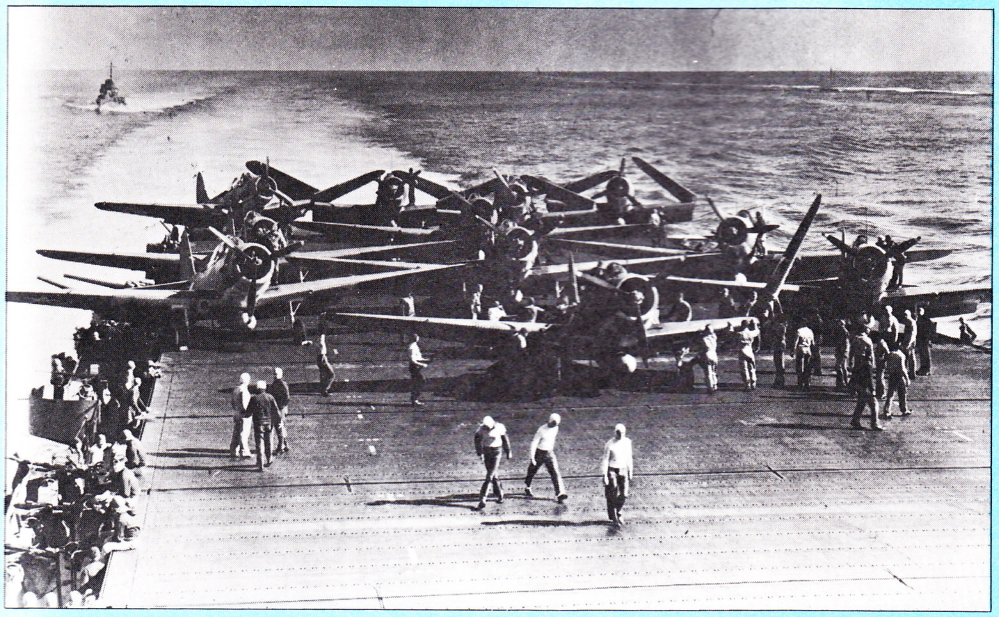
What Yamamoto did not reckon with was the degree to which US intelligence had penetrated the Imperial Japanese Navy's codes. Although the final objective was not clear until the last minute, Nimitz had a fairly clear idea of the nature of the operations. In contrast the Japanese were badly informed; on one point in particular, they believed that a second carrier at the Coral Sea battle had been badly damaged, if not sunk, and that meant that only two US carriers would be facing them.

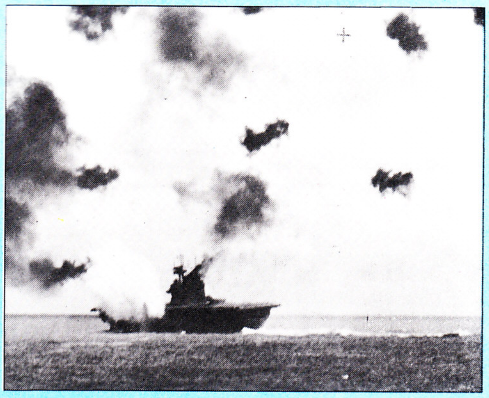
Midway Island was turned into an 'unsinkable carrier' by flying in as many aircraft as possible, and on 28 May, 1942 Rear-Admiral Frank Fletcher sailed from Pearl Harbor with Task Force 16 (*Enterprise* and *Hornet*) and Task Force 17 (*Yorktown*). When battle was joined early on 4 May the Japanese pounded Midway very hard, but in return the shore-based aircraft were able to inflict little damage. Nor was any greater success achieved by the first three waves of carrier aircraft, of which only four planes survived. Five of the nine strike squadrons were eliminated without inflicting any damage on the Japanese.

The fourth attack, however, knocked out the *Akagi, Kaga* and *Soryu* in a well co-ordinated attack. This left the *Hiryu*, not only undamaged but undetected, and her aircraft followed the US aircraft back to the USS *Yorktown*. This time the Americans took the hard knocks, but in spite of severe damage the *Yorktown* did not sink, and she was able to continue operating her aircraft. But the Japanese had been led into the fatal deduction that there were now no US carriers afloat, for as they had assumed there was only one, and they had seen that one on fire and apparently sinking, it was logical to deduce that there were none left. Only when it was too late did a scout plane report that there were three; by then the remaining American aircraft were already on their way.

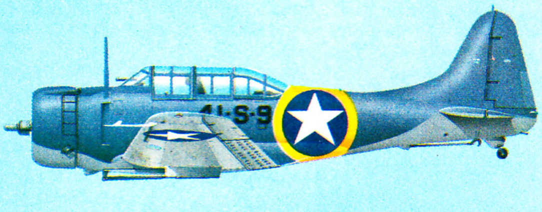
In the ensuing exchange the *Hiryu* was sunk, but the *Yorktown* was hit again, and was finally torpedoed by a submarine. With all four big carriers sunk and two US carriers still afloat, the Japanese did not dare bring their powerful surface fleet into action, and so Yamamoto reluctantly withdrew. The tide of Japanese victory had begun to recede.

*TBDs of VT-6 parked aft on the flight deck of the* Enterprise*, at the start of the Battle of Midway. Only four of these aircraft returned to the ship.*

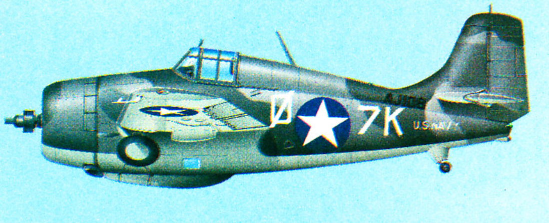




*An air-dropped torpedo explodes against the* Yorktown's *side amidships; the end for her. After further torpedo hits from a Japanese submarine she sank.*



*The Douglas SBD Dauntless dive-bomber was the decisive weapon in the Battle of Midway.*



*The Grumman F4F Wildcat performed well against the more agile Japanese opposition during the battle.*

USA

## USS *Enterprise*

Easily the most distinguished carrier of the Pacific War, the 'Big E' played a major role in the US Navy's victory and epitomized the new type of warfare.

The USS **Enterprise** (CV.6) was the second of the 'Yorktown' class, and joined the Pacific Fleet in 1938. Fortunately she and the other two carriers of the Pacific Fleet were away from Pearl Harbor on 7 December 1941 when the Japanese attacked. When they returned to Oahu they were immediately put into the front line, for the battle fleet no longer existed. Three days afterwards the *Enterprise*'s aircraft sank the submarine *I-170*, the first Japanese submarine to be destroyed.

The *Enterprise* escorted her sister *Hornet* on the Tokyo Raid in April 1942 but did not embark B-25 bombers as her aircraft were to be used to sink the Japanese early warning picket line. Neither carrier was back in time for the Battle of the Coral Sea in the following month, but they joined the *Yorktown* in time for Midway in June. Here the Douglas SBD Dauntlesses from the *Enterprise* sank the carriers *Kaga* and *Akagi*, and *Yorktown*'s Dauntlesses flying off *Enterprise*'s deck joined the group which sank the *Hiryu*. Two days later the *Enterprise*'s dive-bombers sank the heavy cruisr *Mikuma* and damaged the cruiser *Mogami* and two destroyers.

The *Enterprise* covered the Guadalcanal landings in August 1942, and her aircraft shot down 17 Japanese aircraft in two days. During the Battle of the Eastern Solomons on 24 August she was hit by three bombs, and returned to Pearl Harbor for two months' repairs. In the Battle of Santa Cruz on 26 October she once again took three hits, but was still able to operate her aircraft, and as she was now the only US carrier left she had to remain in the forward area. On 13 November her Grumman TBF Avenger torpedo-bombers finished off the damaged battleship *Hiei*, and next day devastated a troop convoy of 11 ships with no fewer than 26 bomb and six torpedo hits.

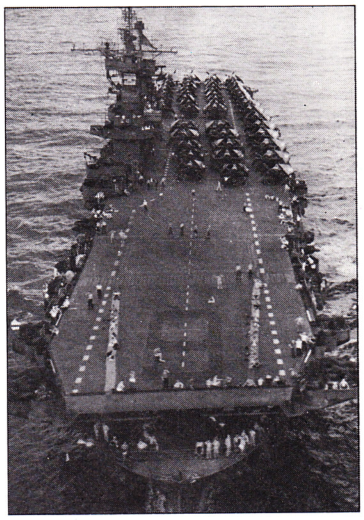
*Enterprise* was finally given lengthy repairs in the United States and did not return to the Pacific until mid-1943. On 25 November 1943 one of her Avengers achieved the world's first night 'kill' at sea. She took part in the massive strike on Truk in February 1944, and in the famous 'Marianas Turkey Shoot' during the Battle of the Philippine Sea the following June. She continued in action into 1945, surviving two *kamikaze* attacks. A third *kamikaze* strike on 14 May finally brought her career to an end, for she had to return to the United States for major repairs.

As the holder of 19 Battle Stars the 'Big E' was a candidate for preservation as a memorial, but efforts to save her came to nothing and in 1958 she was sold for scrap, releasing her name for the first nuclear carrier.

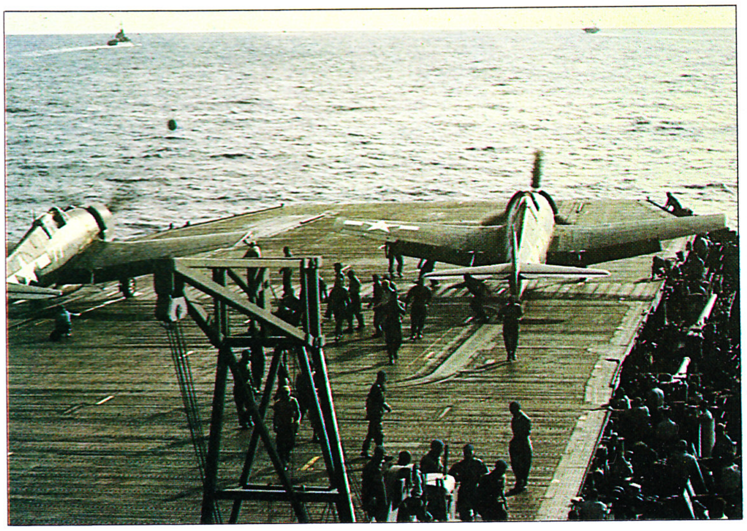
### Specification

**USS *Enterprise* (CV.6)**
**Displacement:** 19,800 tons standard, 25,500 tons full load
**Dimensions:** length 246.74 m (809 ft 6 in; beam 34.75 m (114 ft 0 in) over flight deck; draught 8.84 m (29 ft 0 in)
**Machinery:** 4-shaft geared steam turbines delivering 89520 kW (120,000 shp)
**Speed:** 33 knots
**Armour:** belt 102 mm (4 in); main deck 76 mm (3 in); lower deck 25–76 mm (1–3 in)
**Armament:** (1942) eight 127-mm (5-in) AA, four quadruple 27.94-mm (1.1-in) AA and 16 12.7 mm (0.5-in) machine-guns
**Aircraft:** (1942) 27 fighters, 37 dive-bombers and 15 torpedo-bombers
**Complement:** 2,919 officers and enlisted men

*Right: The USS* Enterprise *(CV.6) with aircraft ranged on the after part of the flight deck. No flying operations are in progress; the crewmen are clearly relaxing on deck.*



*Below: Hellcats spotted on the port and starboard catapults. Although aircraft could take off in the ordinary way, catapulting them speeded up the launch of a large strike and enabled more of the flight deck to be used.*



USA

## USS *Hornet*

Although she was the third member of the 'Yorktown' class, the USS **Hornet** (CV.8) was authorized some years after her sisters. She commissioned on 20 October 1940, seven weeks before Pearl Harbor. After a shakedown cruise with her air group in the Caribbean in January 1942 the ship embarked the first twin-engine North American B-25 bombers for the famous Doolittle Raid on Tokyo. After two months of intensive trials and training the Hornet left for the Pacific on 2 April, carrying 16 B-25 Mitchell bombers.

The raid on 18 April took the Japanese completely by surprise, and most of the bombers reached China safely. The *Hornet*'s next assignment was the Battle of Midway, on 4-6 June 1942. Although her air group lost all its Douglas TBD Devastator torpedo-bombers and five Grumman TBF Avengers in an unsuccessful strike, and failed to hit the Japanese carrier *Hiryu* in a second strike, on the last day of the battle it made amends by sinking the damaged heavy cruiser *Mikuma* and inflicting severe damage on her sister *Mogami*.

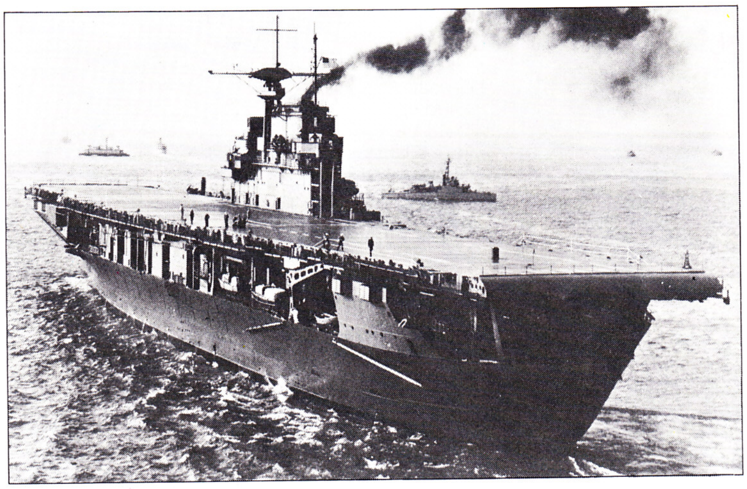
The *Hornet* was ferrying US Marine Corps fighters at the time of the Guadalcanal landings in August 1942, but after landing her aircraft she joined the *Wasp* and *Saratoga* in the covering force. Although withdrawn to Espiritu Santo to avoid being sunk by submarines, she sortied early in October to attack Japanese targets, and on 25 October met the Japanese carriers once more, in the Battle of Santa Cruz.

On 26 October, after the two sides had located one another, the two American carriers launched an air strike (a total of 158 aircraft), while the four Japanese carriers launched most of their 207 aircraft. But while the *Hornet*'s torpedo-bombers and dive-bombers were on their way, 27 Japanese strike aircraft broke through the fighter screen and scored six bomb and two torpedo hits on the *Hornet*. Although heroic efforts were made to extinguish the fires and get the carrier under way, four hours later another Japanese strike scored a torpedo hit and two more bomb hits. By now the American destroyers screening the *Hornet* were dangerously exposed, with the Japanese searching for them in the darkness. The decision was taken to scuttle the *Hornet*, but to the Americans' dismay several torpedoes failed to detonate, and a total of 430 127-mm (5-in) shells fired at the carrier's waterline had no appreciable effect. The waterlogged hulk was abandoned, but the Japanese found it impossible to tow her, and finally two Japanese destroyers gave the *Hornet* her death-blow in the early hours of 27 October.

### Specification

**USS *Hornet* (CV.8)**
**Displacement:** 19,000 tons standard, 29,100 tons full load
**Dimensions:** length 252.2 m (827 ft 5 in overall; beam 34.8 m (114 ft 2 in) over flight deck; draught 8.84 m (29 ft 0 in)
**Machinery:** 4-shaft geared steam turbines delivering 89520 kW (120,000 shp)
**Speed:** 33 knots
**Armour:** belt 64–102 mm (2½–4in); main deck 76 mm (3 in); lower deck 25–76 mm (1–3 in)
**Armament:** (1942) eight 127 mm (5-in) AA, four quadruple 27.94-mm (1.1-in) AA, 30 20-mm AA and nine 12.7-mm (0.5-in) machine-guns
**Aircraft:** (1942) 36 fighters, 36 dive-bombers and 15 torpedo-bombers
**Complement:** 2,919 officers and enlisted men

*The new carrier* Hornet *(CV.8) on trials in 1941. She was commissioned seven weeks before Pearl Harbor and left for the Pacific in March 1942.*



USA

## USS *Wasp*

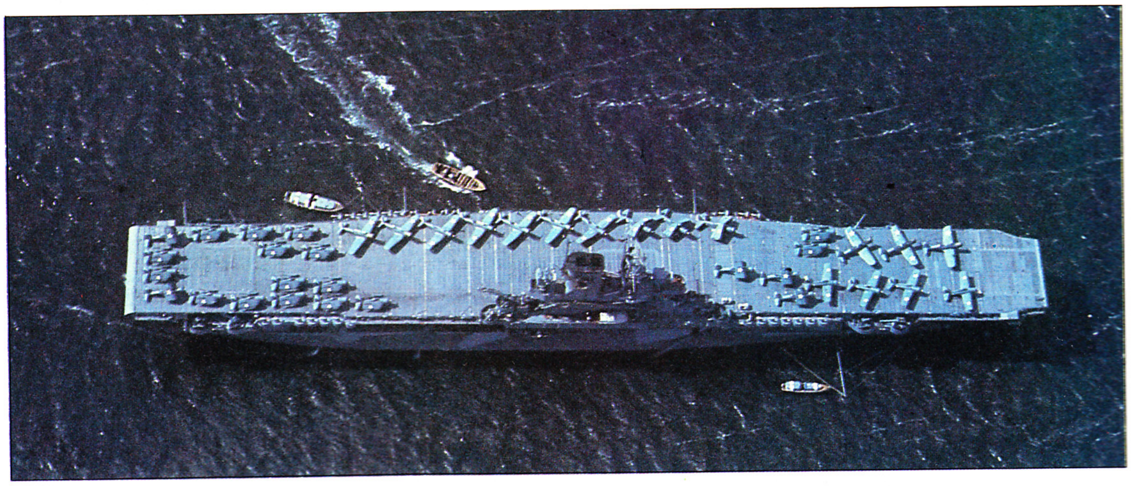
Under the terms of the Washington Naval Treaty the US Navy was restricted to 135,000 tons of aircraft-carriers, and so could only build a further 14,700 tons of carriers after the completion of *Lexington, Saratoga, Ranger, Yorktown* and *Enterprise*. Thus in 1935 an improved version of the *Ranger* was ordered, also with modest speed and light armour but big aircraft capacity. The opportunity was taken to eradicate the worst faults of the *Ranger*, and the new carrier was given a proper island superstructure and better compartmentation.

The USS ***Wasp*** (CV.7) was commissioned in April 1941, and from the autumn of that year was in the Atlantic on training duties. Late in March 1942 she went to the Mediterranean to ferry RAF Spitfires to Malta. At the beginning of July she left San Diego for the Pacific and took part in the Guadalcanal landings, where her aircraft flew more than 300 sorties. She missed the Battle of the Eastern Solomons as she had been detached to refuel, and she returned to Noumea to take on board a consignment of fighter aircraft for the US Marines on Guadalcanal.

Early in the afternoon of 15 September 1942 the *Wasp* flew off her fighters, but shortly afterwards she was hit by three torpedoes fired by the Japanese submarine *I-19*. Two of the torpedoes struck her on the port side near the aviation gasoline tanks, while the third struck higher up and damaged the refuelling system, which had already been ruptured.

The ship was very quickly gutted by fire and explosions, which proved impossible to contain as the torpedo detonations had also ruptured the fire mains. In less than an hour the order to abandon ship was given, and she continued to burn for another 3½ hours; finally the destroyer *Lansdowne* was ordered to sink her, and four torpedoes were fired.

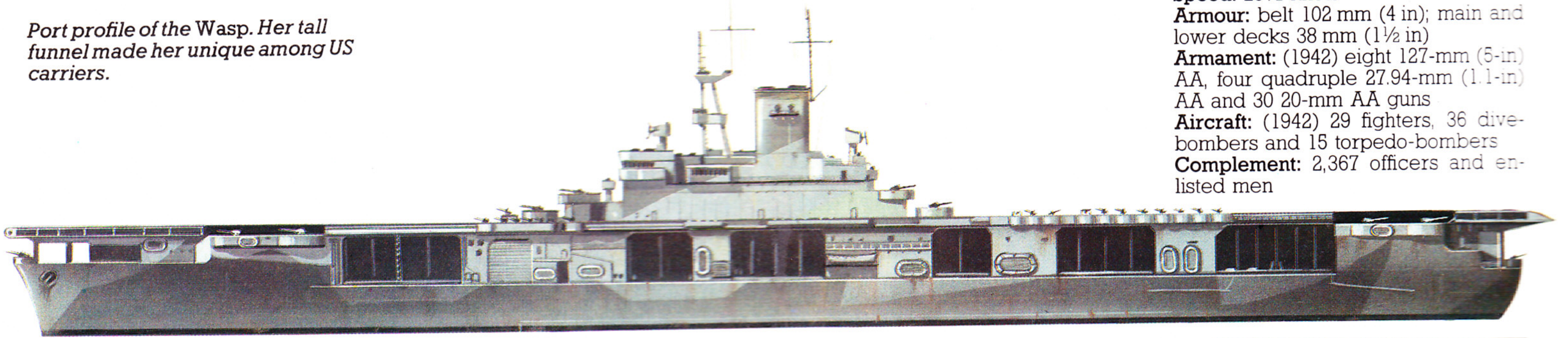
The *Wasp* proved the least battleworthy of all American carriers, and her loss provided important lessons for the future. A board of enquiry showed that the majority of the damage was caused by the third torpedo-hit, for the first two hits had left the machinery and auxiliary power undamaged. However, the shock of the explosions and the 'whip' of the hull had knocked out electrical switchboards and the damage control organization. Thereafter a series of subsidiary explosions of bombs, torpedoes, ammunition and aircraft fuel tanks wrecked the ship.



*The* Wasp *(CV.7) at Pearl Harbor on 8 August 1942, a month before she was sunk.*

### Specification

**USS *Wasp* (CV.7)**
**Displacement:** 14,700 tons standard, 20,500 tons full load
**Dimensions:** length 225.93 m (741 ft 3 in) overall; beam 24.61 m (80 ft 9 in); draught 8.53 m (28 ft 0 in)
**Machinery:** 2-shaft geared steam turbines delivering 55950 kW (75,000 shp)
**Speed:** 29½ knots
**Armour:** belt 102 mm (4 in); main and lower decks 38 mm (1½ in)
**Armament:** (1942) eight 127-mm (5-in) AA, four quadruple 27.94-mm (1.1-in) AA and 30 20-mm AA guns
**Aircraft:** (1942) 29 fighters, 36 dive-bombers and 15 torpedo-bombers
**Complement:** 2,367 officers and enlisted men



***Port profile of the* Wasp. *Her tall funnel made her unique among US carriers.***

USA

## USS *Essex*

The 'Essex' class can claim to be the most cost-effective and successful aircraft-carriers ever built. The specification, issued in June 1939, was for an improved 'Yorktown' class, but with displacement increased by 7,000 tons to provide stronger defensive armament, thicker armour, more power and above all, more aviation fuel. With more than 6,300 tons of oil fuel the endurance was 27360 km (17,000 miles) at 20 knots, while 690 tons of gasoline and 220 tons of ammunition pushed up the number of sorties which could be flown. Above all, the same number of aircraft could be carried, although in practice many more could be carried; the nominal strength was 82 but by 1945 108 of the latest aircraft could be embarked.

Eleven of the class were ordered in 1940 and a further 13 were built during World War II. Building times were extremely short; USS ***Essex*** (CV.9) was built in 20 months, and the wartime average was cut to 17½ months.

The lead-ship of her class, the *Essex* reached the Pacific in May 1943, by which time the worst was over, but she saw considerable heavy fighting with the Fast Carrier Task Force, with the *Enterprise* and *Saratoga* and the light fleet carriers of the 'Independence' class. In the spring of 1944 the *Essex* was withdrawn for a short refit, but returned to join Task Group 12.1 for the raid on the Marcus Islands. Later she formed part of the famous Task Group 38.3 in Task Force 38. On 25 November 1944, while supporting the Leyte Gulf landings, she was hit on the port side by a *kamikaze*, suffering 15 dead and 44 wounded, and had to be withdrawn for repairs. However, she was back in action after only three weeks.

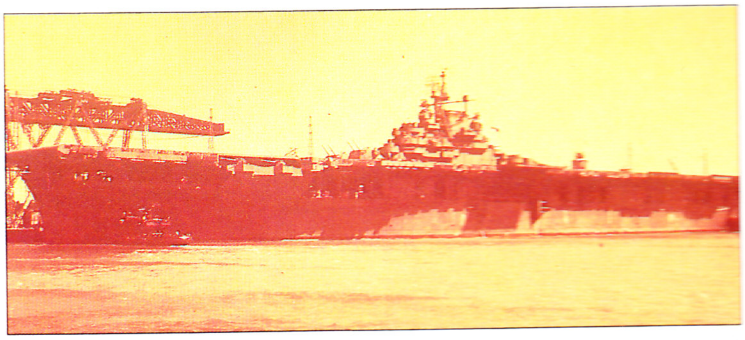
In 1945 the *Essex* returned to TF 38, and took part in the attacks on Lingayen, Formosa, Sakishima Gunto and Okinawa. With TF 58 she took part in the final assault on Japan, and was one of the enormous fleet mustered in Tokyo Bay for the Japanese surrender in August 1945. On her return the battered carrier received her first full repairs and was put into reserve.

In retrospect, the 'Essex' design proved ideal for the Pacific. It was seaworthy and had the endurance needed to cover the enormous distances involved, not only for itself but for its aircraft. Despite its 'open' hangars, the class proved surprisingly rugged, and during the first 14 months in action only three units of the class were damaged by enemy action; apart from the *Franklin* (CV.13) all returned to active service after sustaining severe battle damage.

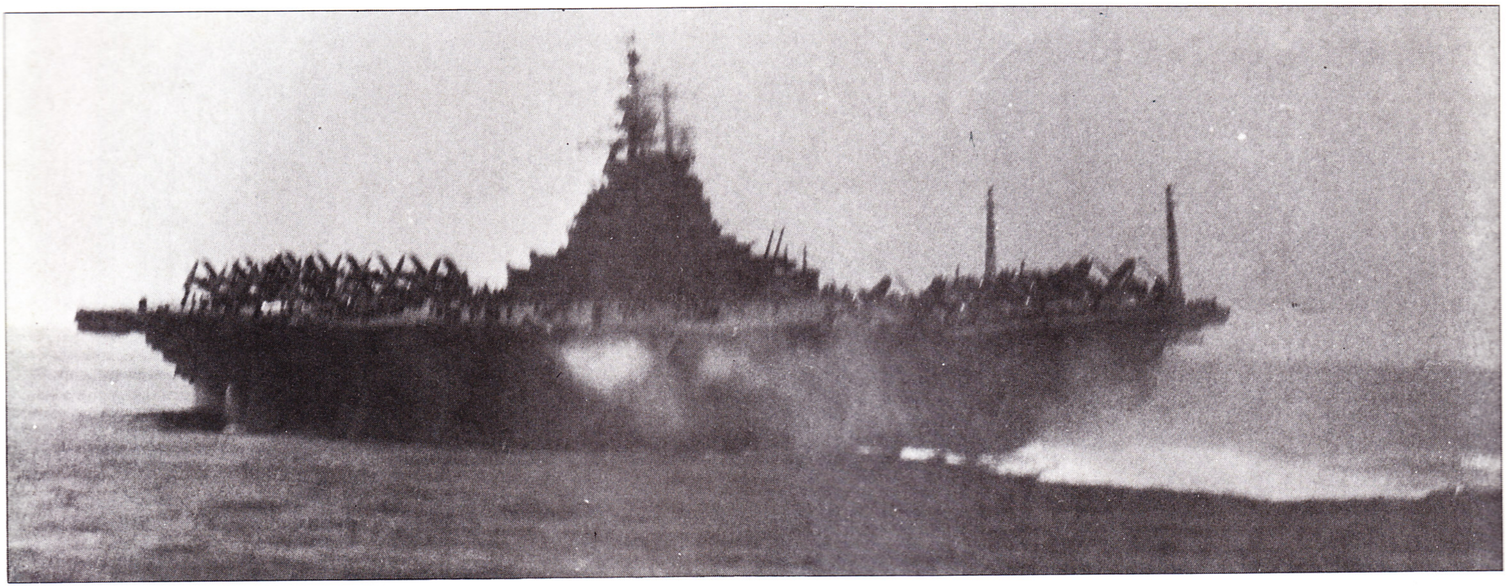
### Specification

**USS *Essex* (CV.9)**
**Displacement:** 27,100 tons standard, 33,000 tons full load
**Dimensions:** length 267.21 m (876 ft 8 in) overall; beam 45.0 m (147 ft 8 in) over flight deck; draught 8.69 m (28 ft 6 in)
**Machinery:** 4-shaft geared steam turbines delivering 111900 kW (150,000 shp)
**Speed:** 33 knots
**Armour:** belt 64–102 mm (2½–4 in); flight deck 38 mm (1½ in); hangar deck 76 mm (3 in); main deck 38 mm (1½ in); turrets and barbettes 38 mm (1½ in)
**Armament:** (1943) 12 127-mm (5-in) AA, 11 quadruple 40-mm bofors AA and 44 20-mm AA guns
**Aircraft:** (1943) 6 fighters, 36 dive-bombers and 18 torpedo-bombers
**Complement:** 3,240 officers and enlisted men

*USS* Essex *being fitted out at Pearl Harbor in 1942.*



# USS *Intrepid* in Action



***The USS* Intrepid *(CV.11) trailing smoke after a kamikaze hit. In all she was hit three times by kamikazes and torpedoed once, but survived.***

The USS *Intrepid* (CV.11) was the third ship of the 'Essex' class, not only the largest class of major warships ever built but also the most effective. She and four of her sisters were ordered under Fiscal Year 1940 programmes, while the remaining six were ordered under FY 1941. A further 15 were laid down during the war, and 17 of them entered service before VJ-Day.

The *Intrepid* was floated out of her building dock on 26 April 1943, and such was the speed of wartime construction that she was commissioned on 16 August, less than four months later, and only 20 months after being laid down. Her first task was to finish her sea trials and allow her raw crew to 'shake down', and when the ship's organization was ready the time came to embark her air group. By late 1943 the flying schools had expanded enormously and there was no shortage of well-trained aircrew to make good the losses in battle, but they still needed a period of intense training at sea. Combat experience had shown the need for new tactics, particularly in air defence, and these tactics could only be exercized with an embarked air group.

The *Intrepid* left for the Pacific after a shakedown cruise lasting barely four months. After passing through the Panama Canal she headed westwards across the Pacific, arriving at Pearl Harbor on 10 January 1944. There she joined the lead-ship of her class, the USS *Essex*, and a converted ex-light cruiser, the USS *Cabot*, in Task Group 58.2, part of Task Force 58 (TF 58). Their first task was to attack Japanese bases in the Marshall Islands, to provide support for the landing on Kwajalein Atoll on 31 January, and they were under a new commander, Admiral Marc A. Mitscher. During these operations the *Intrepid* and TG 58.2 attacked Roi, but her air group suffered no casualties.

On 17 February TF 58 started a more risky operation, a three-day raid on the main enemy base, Truk in the Caroline Islands. As before, the purpose was to prevent the Japanese from inflicting severe losses on a planned amphibious landing, in this case the Eniwetok landings. Despite the strong defences of Truk the raid was a great success. US Navy aircraft sank 47 ships, including a light cruiser, three destroyers and a large tanker, and in addition destroyed 125 aircraft. The cost was not excessive, 25 aircraft, but during a night attack on the task force Nakajima B5N 'Kate' torpedo-bombers equipped with one of the first Japanese radar sets succeeded in hitting the *Intrepid*. The ship's own night-fighters were completely outwitted.

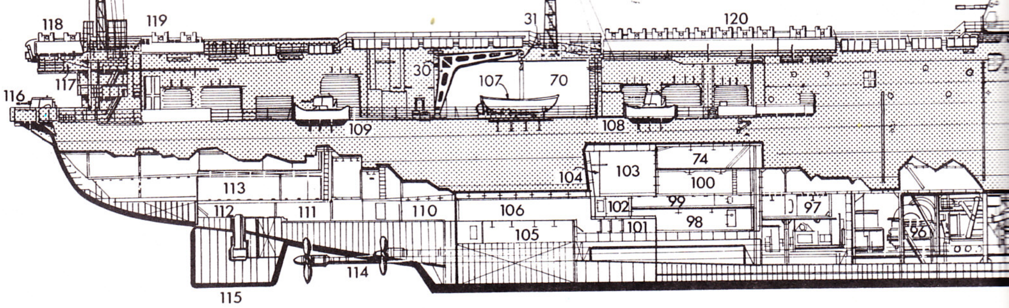
The torpedo hit right aft and wrecked the rudder. Thanks to her heavy underwater protection *Intrepid* was in no danger of sinking, but to enable her to be steered a makeshift 'sail' had to be erected at the forward end of the flight deck. The damaged carrier limped slowly back to Majuro, covered by the light carrier *Cabot*, a pair of cruisers and four destroyers. There further repairs were carried out for the long haul back to Pearl Harbor for further repairs. The ship went into dry dock at Pearl Harbor on 26 February, nine days after the attack. A month later she was back in the United States, at Hunter's Point in San Francisco for a three-month refit and repair.

## Return to the Pacific

The opportunity was taken to update the radars and provide more anti-aircraft guns. When *Intrepid* sailed on 9 June her flight deck was packed with vehicles and a variety of US Army and US Navy aircraft. Shipping was too precious to allow the vast hangar and flight deck space of a carrier to be wasted, and the *Intrepid* would not become fully operational until she was back in the Central Pacific. Once at Pearl Harbor her air group began the laborious task of working up to full efficiency, and after two months the ship was ready to join her sister *Bunker Hill* and the CVLs *Cabot* and *Independence* in TG 38.2, part of Task Force 38.

On 28 August 1944 the task group sailed from Eniwetok to start the process of softening up Japanese defences as a prelude to the landings on Morotai and Palau, and early the following month Palau itself was attacked. On 12-13 September the attacks switched to the central Philippines, to keep the defenders guessing. The results of this strike were devastating: 59 ships sunk and 478 aircraft destroyed. On 6 October TG 38.2 sailed from Ulithi to begin attacks on Formosa, reinforced by another 'Essex' class carrier, USS *Hancock*.

The fast carriers ranged far and wide in their quest for targets. On 10 October TG 38.2 hit bases on Anami-O-Shima, Okinawa and Sakishima Gunto; two days later the target was bases on Formosa (Taiwan); by 18 October targets in Luzon in the Philippines were being hit. Once again enormous damage was caused; TF 38's attack on Luzon on 21 September resulted in the destruction of 35 merchant ships and 300 aircraft. The whole operation against the Philippines cost TF 38 a total of 54 aircraft, many of them in deck accidents, but in return 150 Japanese ships and 1,000 aircraft were destroyed.



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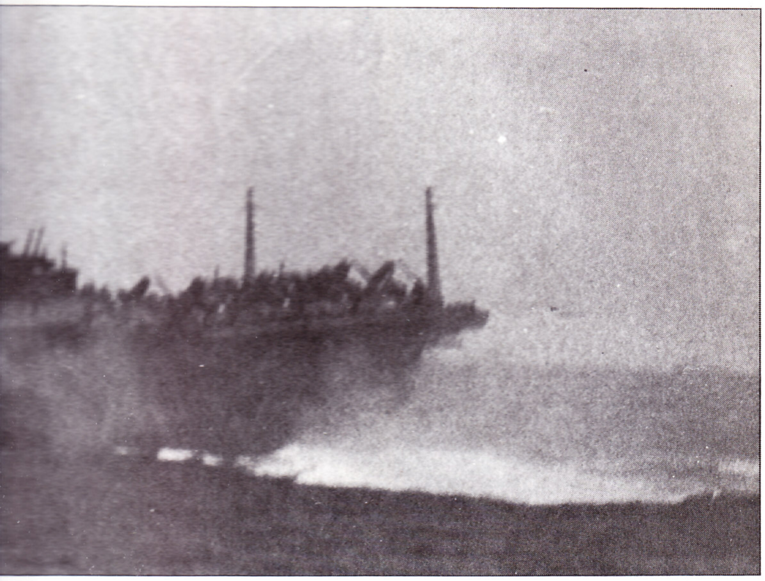

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The *Intrepid* played an important role in the Battle of Leyte Gulf. On 23 October TG 38.2 was positioned east of San Bernardino Strait in order to defend the landing beaches from an assault by the powerful Japanese surface forces approaching from the west. In fact one of *Intrepid*'s Curtiss SB2C Helldivers was the first to sight Admiral Kurita's Force 'A' at dawn, and this led to the Battle of the Sibuyan Sea. The *Intrepid* and the small carrier *Cabot* flew off the first strike, which crippled the heavy cruiser *Myoko* with a torpedo hit and hit the 64,000-ton battleship *Musashi* with one torpedo and one bomb. *Intrepid*'s air group also took part in the final strike, together with those of the *Enterprise, Essex, Franklin* and *Cabot*. Their repeated torpedo and bomb hits finally sank the *Musashi*, and after the loss of the battleship the remainder of the force retired.

## Kamikaze

On the next day the *Intrepid* took part in the Battle of Cape Engano when TF 38 mistook the Japanese decoy group, the First Mobile Force, for the main group. However most of the remaining Japanese carriers were sunk, the *Zuiho, Zuikaku, Chitose* and *Chiyoda* going down to carrier strikes. After two days of almost continuous action the fast carriers were showing signs of strain, but with the destruction of the Japanese surface forces the worst seemed to be over. But the Japanese were about to initiate suicide or *kamikaze* attacks, and these were to test the morale of the task force to the utmost. Off Luzon on 29 October the *Intrepid* was the first to be hit, when a damaged Japanese aircraft crashed on the deck. Fortunately damage was slight, but 10 men were killed and six wounded. She was able to continue in action. On the next day TG.38.4 was not so lucky, and the *Franklin* and *Belleau Wood* were both set on fire by aircraft deliberately diving onto their packed decks.

The task force was pulled back to Ulithi to rest and effect repairs, but soon after the ships arrived on 2 November they were hurriedly recalled to Luzon to provide support for the troops fighting ashore. On 25 November the *Intrepid* was still at sea, providing continuous ground support and drawing fuel and stores from the Fleet Train. During a series of air attacks a burning Japanese aircraft suddenly plummeted into the *Intrepid*'s flight deck, starting fires among the planes and ordnance.

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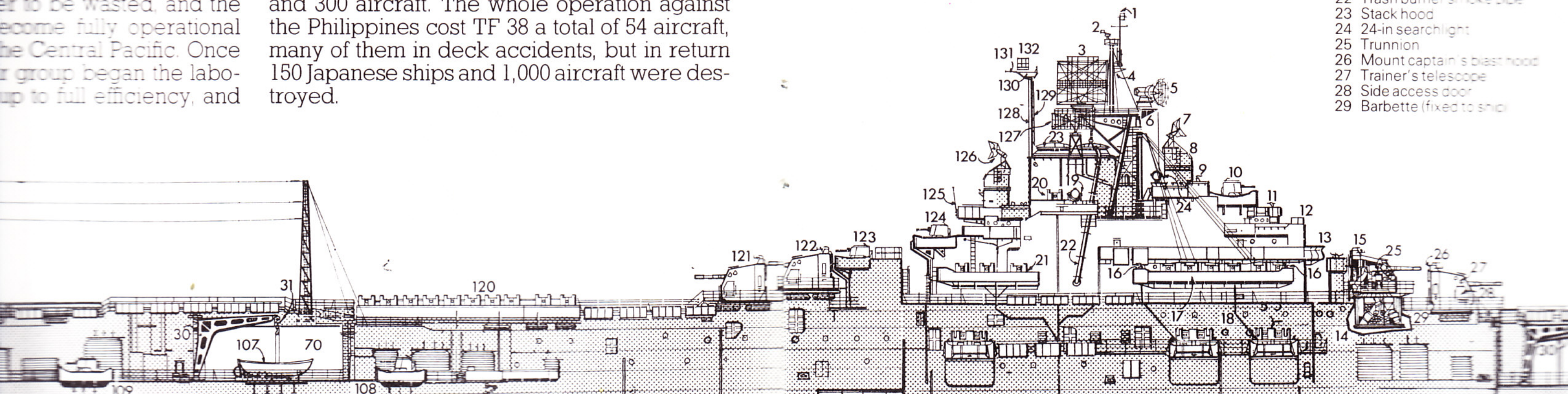
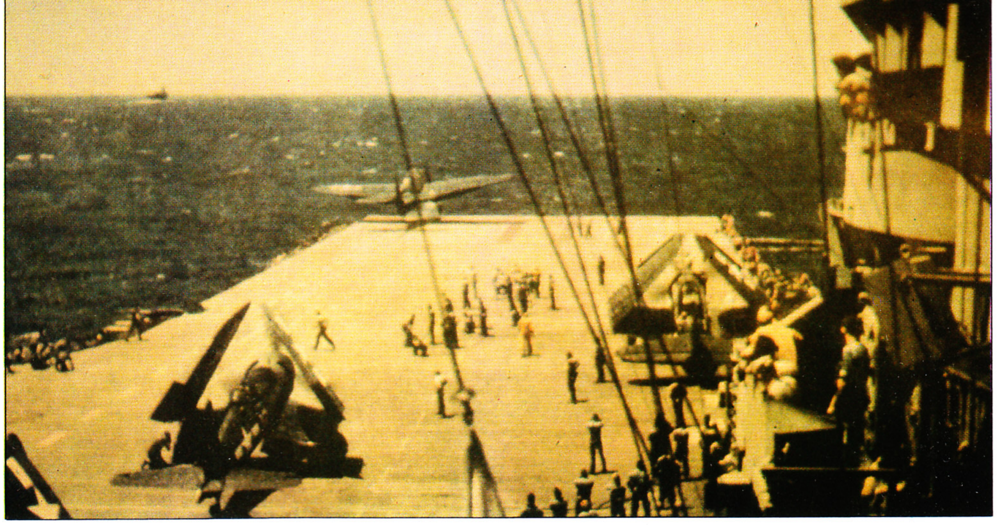
## USS *Intrepid* cutaw

1 YE antenna
2 SG surface warning radar antenna
3 SK air warning radar antenna
4 Repair platform
5 SM radar antenna
6 Mast head platform
7 MK 4 fire control radar antenna
8 MK 37 director for 5-in guns
9 Target designator, port and starboard
10 40-mm Bofors mounting
11 MK 51 director
12 Navigating bridge
13 Flag bridge
14 5-in handling room and ready service ammunition
15 5-in/38 twin DP gun mounting
16 MK 51 director
17 Six single 20-mm Oerlikon AA gun mountings
18 Three 40-mm Bofors quadruple mountings (three aft)
19 36-in searchlight
20 Single 20-mm Oerlikon AA gun
21 Three single 20-mm Oerlikon AA gun mountings
22 Trash burner smoke pipe
23 Stack hood
24 24-in searchlight
25 Trunnion
26 Mount captain's blast hood
27 Trainer's telescope
28 Side access door
29 Barbette (fixed to ship)





***A TBF Avenger torpedo-bomber leaves the* Intrepid*'s port catapult, while two more wait with wings folded.***

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Such was the efficiency of the navy yard organization that the *Intrepid* sailed from Hunter's Point on 20 February, bound for the war zone once more, and she arrived at Ulithi on 13 March. She now formed part of TG 58.4 with the

### USS *Intrepid* cutaway drawing key

1 YE antenna
2 SG surface warning radar antenna
3 SK air warning radar antenna
4 Repair platform
5 SM radar antenna
6 Mast head platform
7 MK 4 fire control radar antenna
8 MK 37 director for 5-in guns
9 Target designator, port and starboard
10 40-mm Bofors mounting
11 MK 51 director
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14 5-in handling room and ready service ammunition
15 5-in/38 twin DP gun mounting
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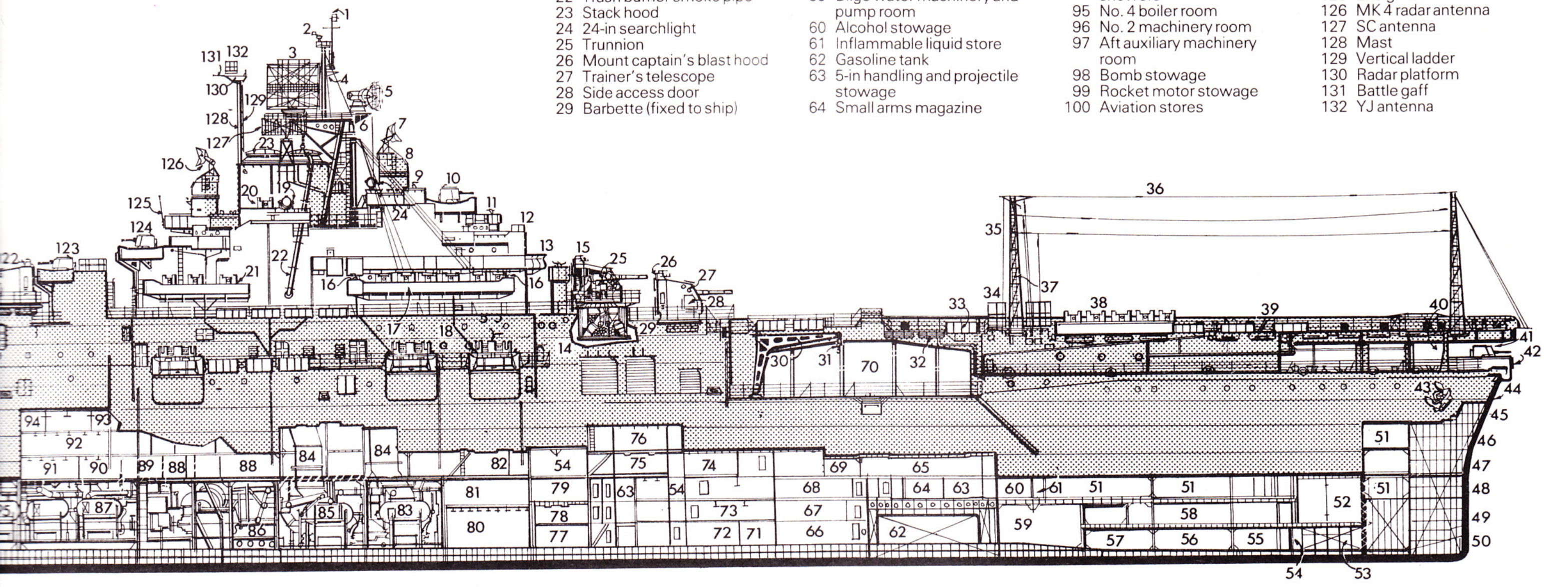
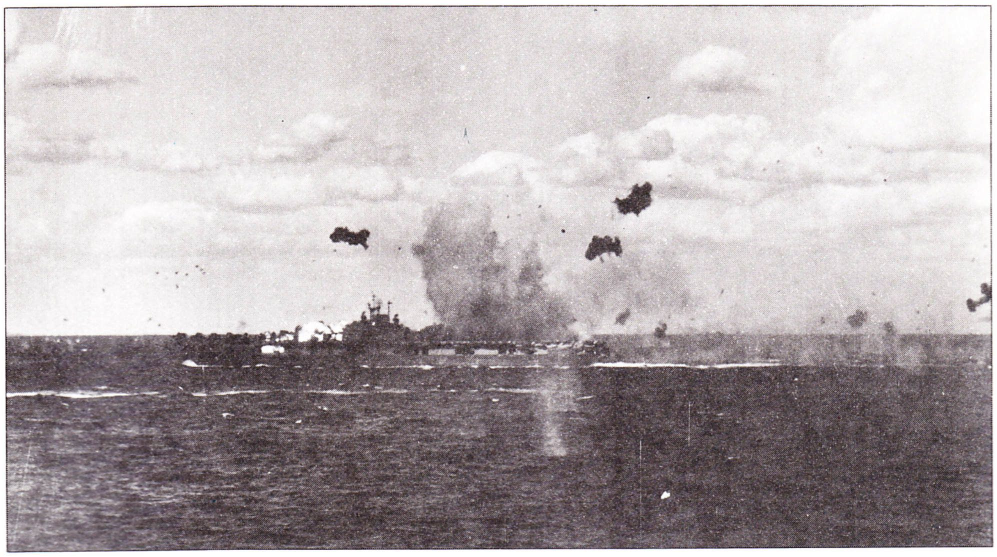
17 Six single 20-mm Oerlikon AA gun mountings
18 Three 40-mm Bofors quadruple mountings (three aft)
19 36-in searchlight
20 Single 20-mm Oerlikon AA gun
21 Three single 20-mm Oerlikon AA gun mountings
22 Trash burner smoke pipe
23 Stack hood
24 24-in searchlight
25 Trunnion
26 Mount captain's blast hood
27 Trainer's telescope
28 Side access door
29 Barbette (fixed to ship)
30 Crane jib
31 Main lift hook
32 Life rafts
33 Life net rack
34 Antenna down-leads screen
35 Wireless mast
36 Long-range wireless rig
37 Ladder (inside mast)
38 Five single 20-mm Oerlikon mountings
39 Flight deck
40 Galley deck
41 Forward quadruple 40-mm mounting
42 Forecastle deck
43 Anchor: 30,000-lb stockless bower anchor
44 Main deck
45 Second deck
46 Third deck
47 Fourth deck
48 First platform
49 Second platform
50 Hold
51 Store
52 Chain locker
53 Sump-tank
54 Watertight trunk
55 Pump room
56 Incendiary bombs stowage
57 Pyrotechnics stowage
58 Torpedo exercise heads stowage
59 Bilge water machinery and pump room
60 Alcohol stowage
61 Inflammable liquid store
62 Gasoline tank
63 5-in handling and projectile stowage
64 Small arms magazine
65 Detention cells
66 Aviation lubricating oil tank pump room
67 40-mm and 20-mm AA ammunition stowage
68 Bomb stowage
69 Bomb vanes stowage
70 Roller curtain openings in hangar sides
71 Aviation lubricating oil
72 40-mm AA ammunition stowage
73 Rocket motor stowage
74 Crew's berthing
75 Damage control HQ
76 Crew's mess
77 CIC (Combat Information Centre)
78 Plotting room
79 Bomb fuze magazine
80 Forward auxiliary machine room
81 Generator platform
82 Medical stores
83 No. 1 boiler room
84 Boiler uptake space
85 No. 2 boiler room
86 No. 1 machinery room
87 No. 3 boiler room
88 Clothes and small stores
89 Fire brick stowage
90 Barber's shop
91 Athletic gear stowage
92 General workshop
93 Crew's toilet
94 Crew's washroom and showers
95 No. 4 boiler room
96 No. 2 machinery room
97 Aft auxiliary machinery room
98 Bomb stowage
99 Rocket motor stowage
100 Aviation stores
101 Plotting room
102 Air flask stowage
103 Torpedo stowage
104 Gas trunk
105 Pump rooms
106 Fruit and vegetable stowage
107 26-ft motor whaleboat
108 40-mm Bofors gun mounting sponson
109 40-mm Bofors gun mounting sponson
110 Blue uniform and coat stowage
111 Motor control room
112 Steering gear room
113 Aviation engine stowage
114 Four-blade screws and propeller shaft
115 Rudder
116 Stern 40-mm quadruple mounting
117 Walkway
118 Two single 20-mm Oerlikon AA gun mountings
119 Two single 20-mm Oerlikon AA gun mountings
120 10 single 20-mm Oerlikon AA gun mountings
121 5-in/38 twin MK 32 DP mounting
122 5-in/32 DP mounting
123 40-mm Bofors mounting
124 40-mm Bofors mounting
125 Ensign staff
126 MK 4 radar antenna
127 SC antenna
128 Mast
129 Vertical ladder
130 Radar platform
131 Battle gaff
132 YJ antenna

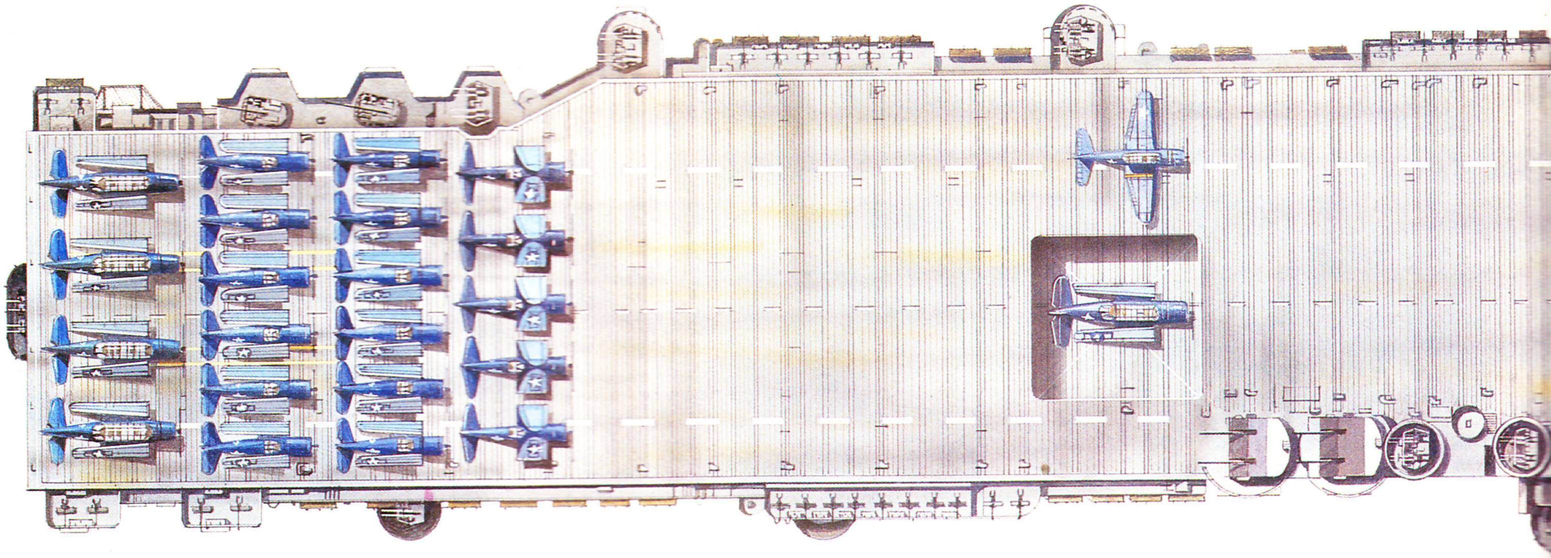


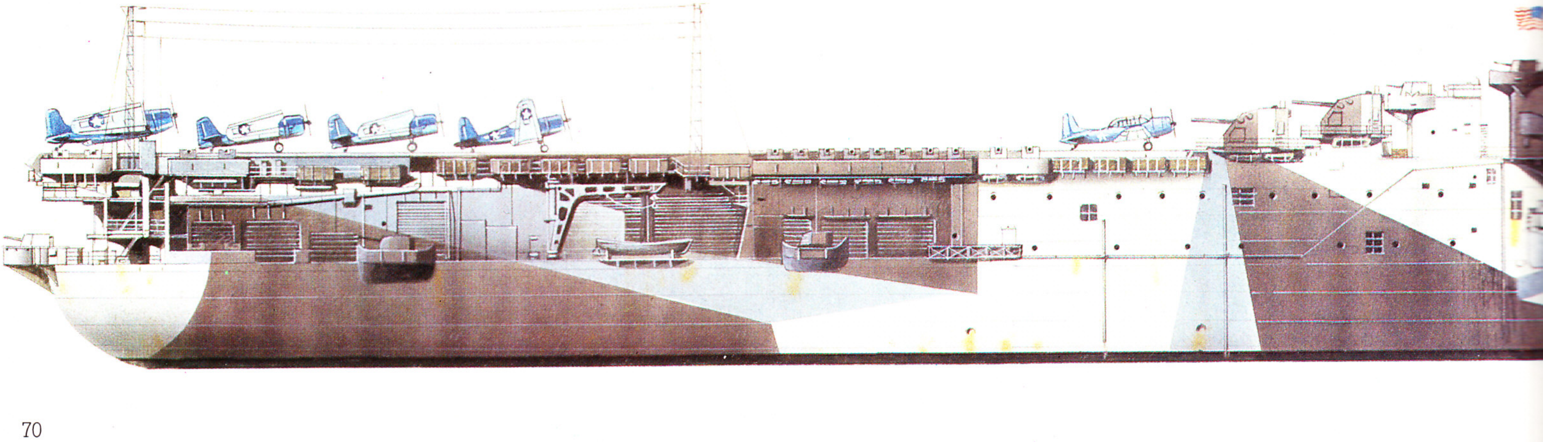
*Yorktown, Langley* and *Independence*. Next day they sailed to begin operations against the Japanese home islands, the final phase of the Pacific war. Now the *kamikaze* aircraft were the only serious threat from the Japanese, for the once-mighty fleet of submarines and surface ships was largely immobilized by lack of fuel.

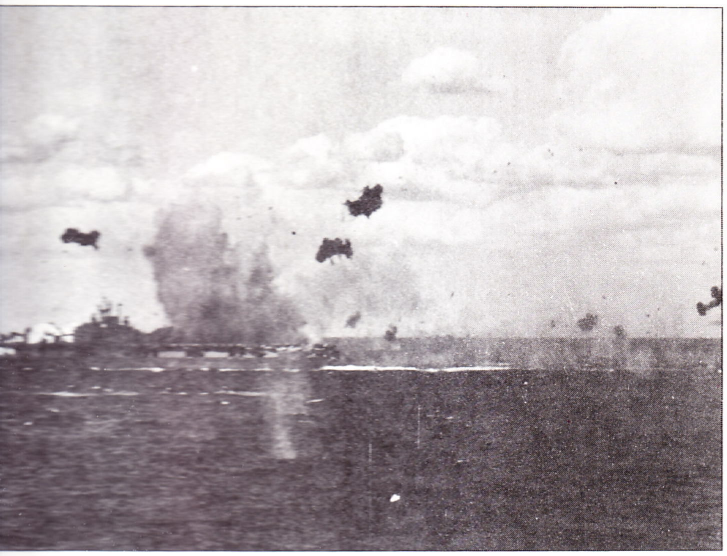
On 18 March the ship suffered slight damage when a *kamikaze* exploded only 15 m (50 ft) away showering her with burning debris. However on 16 April she was not so lucky: two *kamikaze* aircraft chose her as their target, and although one missed by a few feet the second crashed into her flight deck. The engine plunged through the planking into the hangar, causing a big fire and putting her out of action once more. This time, however, casualties were lighter: 10 men killed and 87 wounded.

It was the end of the war for the *Intrepid*. She returned to San Francisco and was back with TF 38 in July, in time for the Japanese surrender on 15 August.



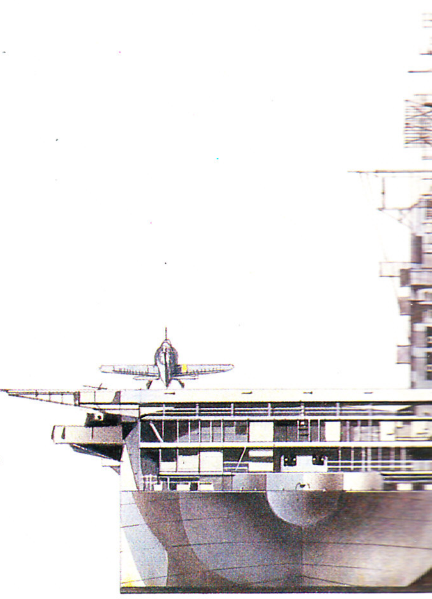


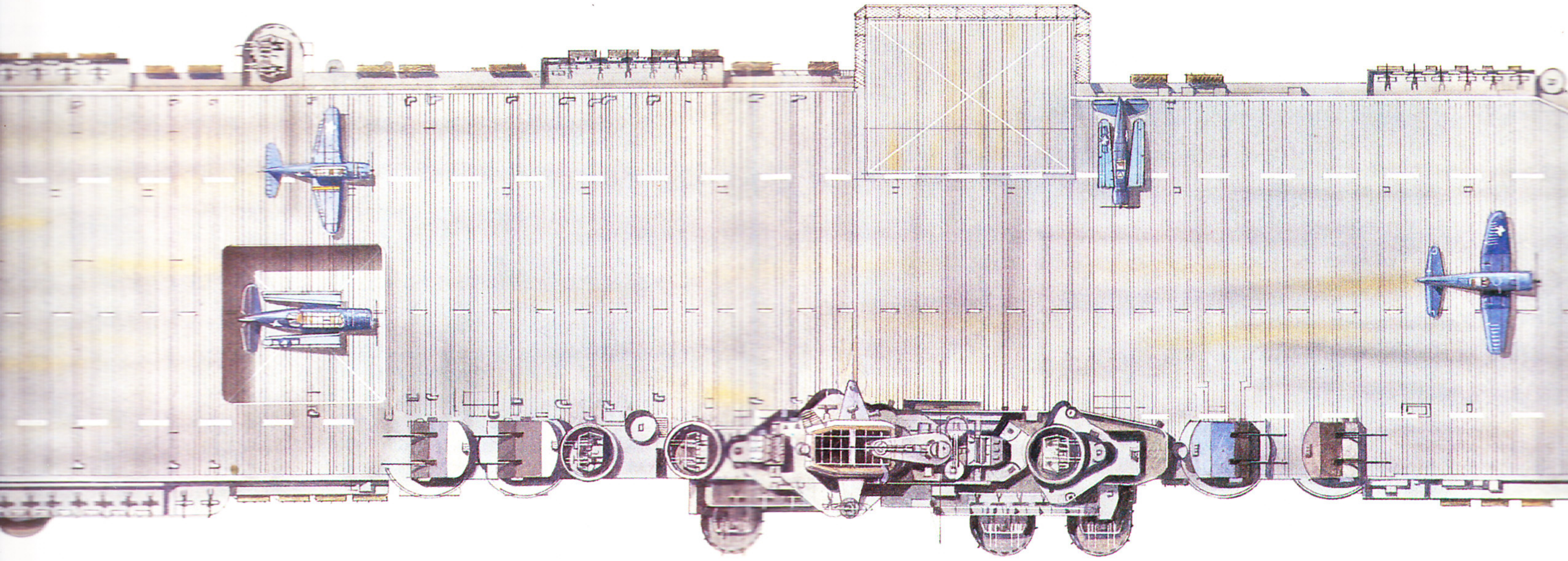


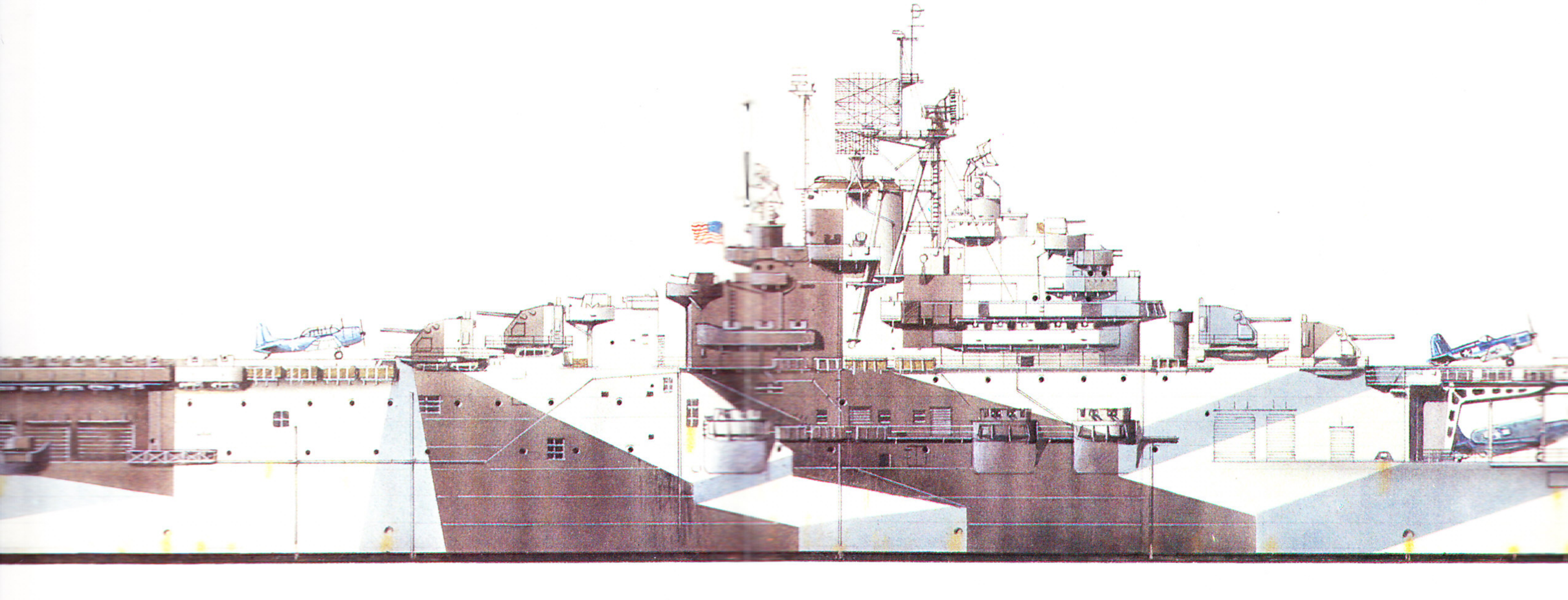


*Left: Smoke pours from the* Intrepid *during heavy air raids on Kyushu in the Japanese home islands. A burning Japanese bomber burst into flame 50 feet away from the carrier, showering her with fuel and debris. From the light cruiser* Santa Fe *it looked as if the carrier had blown up, but her damage control parties dealt swiftly with the fires.*

*Below and right: Starboard profile and bow and stern views of the USS* Intrepid. *She is painted in Camouflage Measure 32/3A, which she carried from June 1944, when she returned to the Pacific after repairs. During her three months in dock she received three additional quad 40-mm Bofors gun mountings below the island, and two more were resited to improve sky arcs.*







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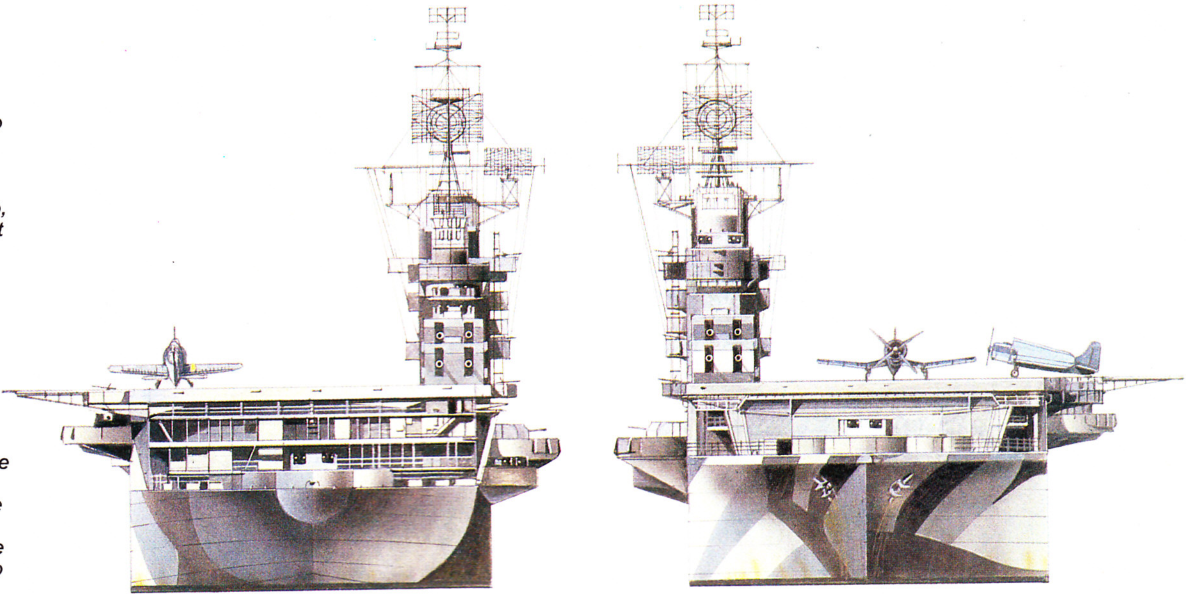
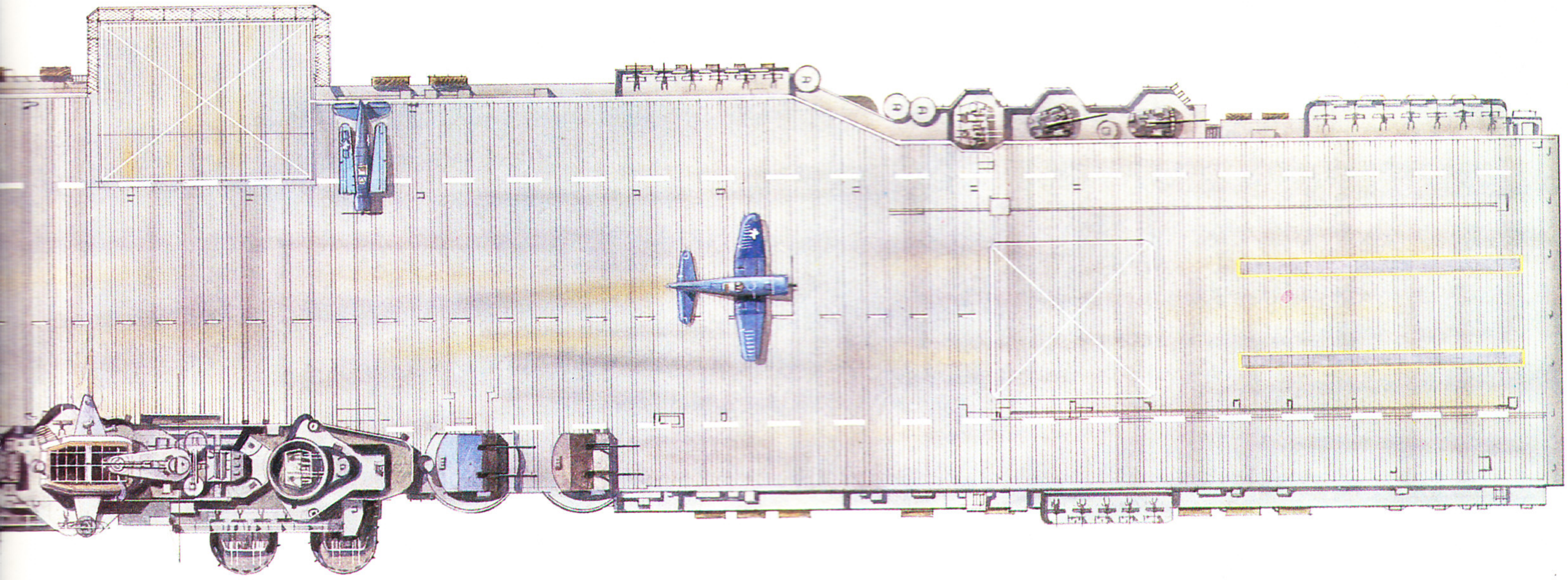
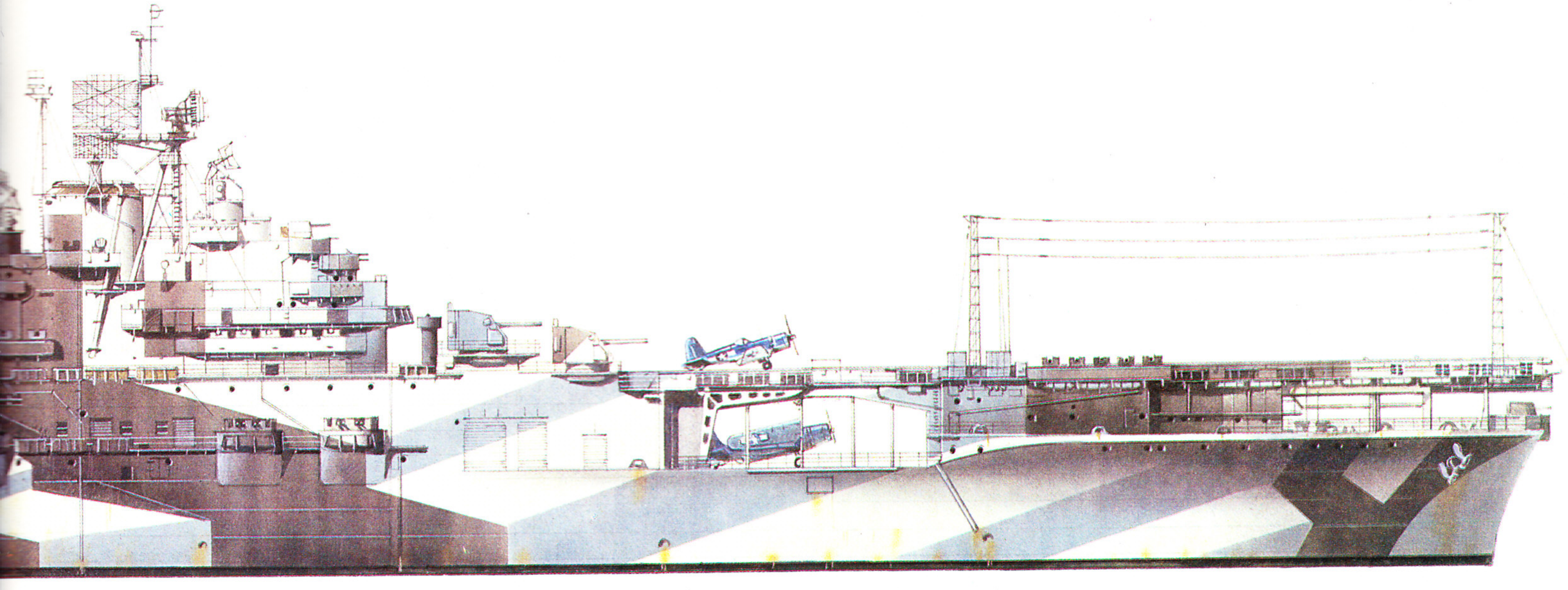






USA

# USS *Franklin*

The fifth unit of the 'Essex' class was authorized in 1940 but was not started until a year after Pearl Harbor as there were no slipways of the right length available. However, her builders, Newport News Shipbuilding Company, made up for the delay by completing her in less than 14 months.

The USS ***Franklin*** (CV.13) was commissioned at the end of January 1944 and joined Task Group 58.2 exactly six months later for an attack on the Bonin Islands. From then on she was constantly in action: during an attack on Formosa and the Ryukyus in October she was hit by a bomber which crashed on deck, and two days later her deck-edge lift was hit by a bomb which killed three men.

During the Battle of Surigao Strait on 24 October 1944 the *Franklin*'s aircraft sank a destroyer, and then attacked the giant battleship *Musashi* in the Sibuyan Sea. On the next day, during the Battle of Cape Engano, they crippled the light carrier *Chiyoda* and finished off the *Zuikaku*. The *Franklin*'s run of good luck ended on 30 October. While defending the Leyte Gulf landing area she and the light carrier were attacked by five *kamikaze* aircraft which had broken through the fighter screen: she lost 56 dead and 60 wounded, while 33 aircraft were destroyed by the fire which followed. She had to return to Bremerton Navy Yard for major repairs, and did not return to active service until February 1945.

As part of TF 58 the *Franklin* attacked Kyushu in the Japanese home islands on 18 March. On the next day two Yokosuka D4Y 'Judy' bombers made a daring low-level attack and hit the *Franklin* with two 250-kg (551-lb) bombs just as she was preparing her second strike. At first the damage did not seem serious for the bombs had not penetrated below the hangar deck, but as the aircraft caught fire their bombs and rockets, as well as the spare ordnance in the hangar, started to explode. Toxic smoke was drawn through the ship's ventilation system, with the result that many of the 724 dead were suffocated (another 265 were wounded). The ship lay dead in the water for three hours as the engine rooms and boiler rooms could not be manned.

Finally the fires were put out and on the next day the *Franklin* was able to get up steam once again. She limped back to Pearl Harbor and then across the Pacific to New York Navy Yard for lengthy repairs. She did not reappear until after the end of the war, and never returned to full commission, being laid up permanently in reserve in February 1947.

### Specification

**USS *Franklin* (CV.13)**

**Displacement:** 27,100 tons standard, 36,500 tons full load

**Dimensions:** length 267.21 m (867 ft 8 in); beam 45.0 m (147 ft 8 in) over flight deck; draught 9.40 m (30 ft 10 in)

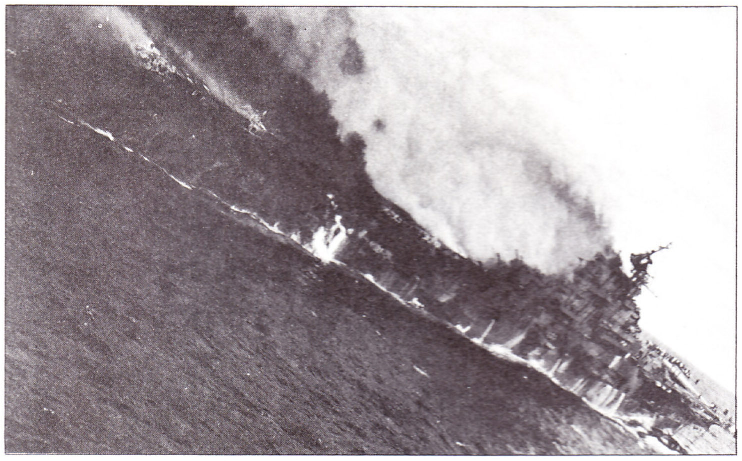
**Machinery:** 4-shaft geared steam turbines delivering 111900 kW (150,000 shp)

**Speed:** 33 knots

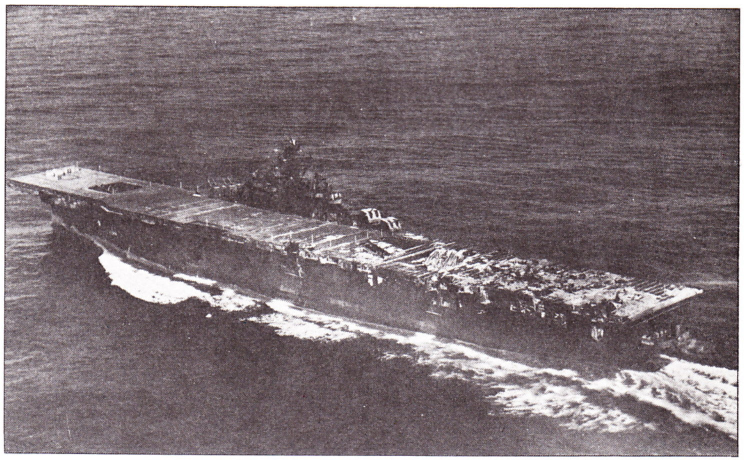
**Armour:** belt 64–102 mm (2½–3 in); flight deck 38 mm (1½ in); hangar deck 76 mm (3 in); main deck 38 mm (1½ in); turrets and barbettes 38 mm (1½ in)

**Aircraft:** (1945) 74 fighters, 15 dive-bombers and 30 torpedo-bombers.

**Complement:** 3,240 officers and enlisted men



***The* Franklin *(CV.13) was gutted by fire after being hit by bombs off Kyushu on 19 March 1945, but still got home.***



***Although cleaned up, the* Franklin *still shows her battle scars on her return to the USA. She was never recommissioned.***

USA

# USS *Princeton*

To meet the acute shortage of carriers after Pearl Harbor the US Navy decided to complete nine 'Cleveland' class light cruisers as carriers. The *Amsterdam* (CL.59), ***Tallahassee*** (CL.61), *New Haven* (CL.76), *Huntington* (CL.77), *Dayton* (CL.78), *Fargo* (CL.85), *Wilmington* (CL.79), *Buffalo* (CL.99) and *Newark* (CL.100) thus became the USS *Independence* (CVL.22), ***Princeton*** (CVL.23), *Belleau Wood* (CVL.24), *Cowpens* (CVL.25), *Monterey* (CVL.26), *Langley* (CVL.27), *Cabot* (CVL.28), *Bataan* (CVL.29) and *San Jacinto* (CVL.30). Although it was an ingenious conversion, the results were disappointing, for the small hangar (65.5 m/215 ft by 17.7 m/58 ft) could accommodate fewer aircraft than that of the 'Sangamon' class CVEs, 33 instead of the 45 planned. However, this 'Independence' class had the speed to keep up with the fast carriers, and that fact kept its members in the front line.

The USS *Princeton* was commissioned late in February 1943, just over a month after the lead-ship *Independence*. She arrived at Pearl Harbor in August 1943 and began exercising with the new *Essex* and *Yorktown*. They launched their first strike on 1 September against Marcus Island. Five weeks later she and two sisters joined in a successful raid on Wake Island.

During the Battle of Leyte Gulf the *Princeton* was part of Task Group 38.3, in the main Fast Carrier Group. On the morning of 24 October 1944 a lone Yokosuka D4Y 'Judy' bomber came out of cloud cover and dropped two 250-kg (551-lb) bombs on the flight deck of the *Princeton*. The bombs passed through three decks before exploding, and the blast started fierce fires in the hangar. Six armed Avengers caught fire, and their torpedoes exploded, adding to the carnage. At 10.10, about half an hour after the attack, other ships were ordered alongside to take off all but essential firefighters and damage control personnel.

The light cruisers *Birmingham* and *Reno* lay alongside, pumping water and providing power for pumps, and all the while ships and friendly aircraft fought off Japanese air attacks. At 14.45 it appeared that all fires were out, but at 15.23 the *Princeton* blew up in a huge explosion. The blast swept the crowded decks of the *Birmingham*, killing 229 men and wounding another 420; the carrier herself had over 100 men killed and 190 injured. Surprisingly the shattered hulk of the *Princeton* was still afloat, but wrecked beyond any hope of salvage. At 16.00 she was abandoned and the cruiser *Reno* was ordered to sink her with two torpedoes, after the destroyer *Irwin* had missed her with four.

### Specification

**USS *Princeton* (CVL.23)**

**Displacement:** 11,000 tons standard, 14,300 tons full load

**Dimensions:** length 189.74 m (622 ft 6 in) overall; beam 33.3 in (109 ft 3 in) over flight deck; draught 7.92 m (26 ft 0 in)

**Machinery:** 4-shaft geared steam turbines delivering 74600 kW (100,000 shp)

**Speed:** 31½ knots

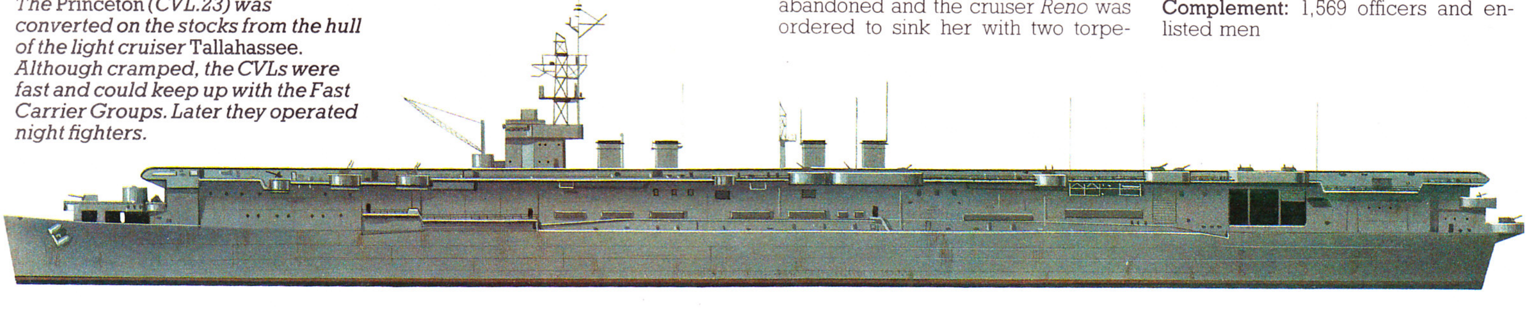
**Armour:** belt 38-127 mm (1½-5-in); main deck 76 mm (3 in); lower deck 51 mm (2 in)

**Armament:** (1943) two 127-mm (5-in) AA, two quadruple 40-mm Bofors AA, nine twin 40-mm Bofors AA and 12 20-mm AA guns

**Aircraft:** (1943) 24 Grumman F4F Wildcat fighters and nine Grumman TBF Avenger torpedo-bombers

**Complement:** 1,569 officers and enlisted men

***The* Princeton *(CVL.23) was converted on the stocks from the hull of the light cruiser* Tallahassee. *Although cramped, the CVLs were fast and could keep up with the Fast Carrier Groups. Later they operated night fighters.***



# The Battle of Leyte Gulf

The so-called Battle of Leyte Gulf was in fact a series of air-sea battles spread over a vast area. It was not only the climax of the war in the Pacific but also the greatest naval battle of history. All the classic warship types were engaged, from battleships and carriers down to destroyer escorts, all fulfilling their designed roles.

Once the Marianas had fallen in August 1944 the Japanese high command knew that defeat stared the country in the face. All that could be hoped for was a gambler's throw, an all-out offensive by the remaining capital ships and carriers against the next big amphibious landing. As soon, therefore, as Allied forces were reported moving into Leyte Gulf in the Philippines, Plan 'Sho-1' was put into action. It called for the Japanese forces in North Borneo and elsewhere to divide into three forces. From Borneo, Force 'A', a portion of the First Strike Force under Vice Admiral Takeo Kurita, was to pass through the San Bernardino Strait to attack the US landing forces from the north off Samar; a Second Strike Force, commanded by Vice Admiral Kiyohide Shima, was to join with Force 'C' (also from Borneo and part of the First Strike Force) under Vice Admiral Shaji Nishimura) to pass through Surigao Strait to attack the landings from the south, finally the main carrier force, the First Mobile Fleet from Japan under Vice Admiral Jisaburo Ozawa (whose carriers had hardly any aircraft) was to lure the American carriers away from the Philippines while the First and Second Strike Forces dealt with the landings and their warship support before dealing with the returning US carriers with the 460-mm (18.1-in) guns of the super-battleships *Yamato* and *Musashi,* part of Force 'A'.

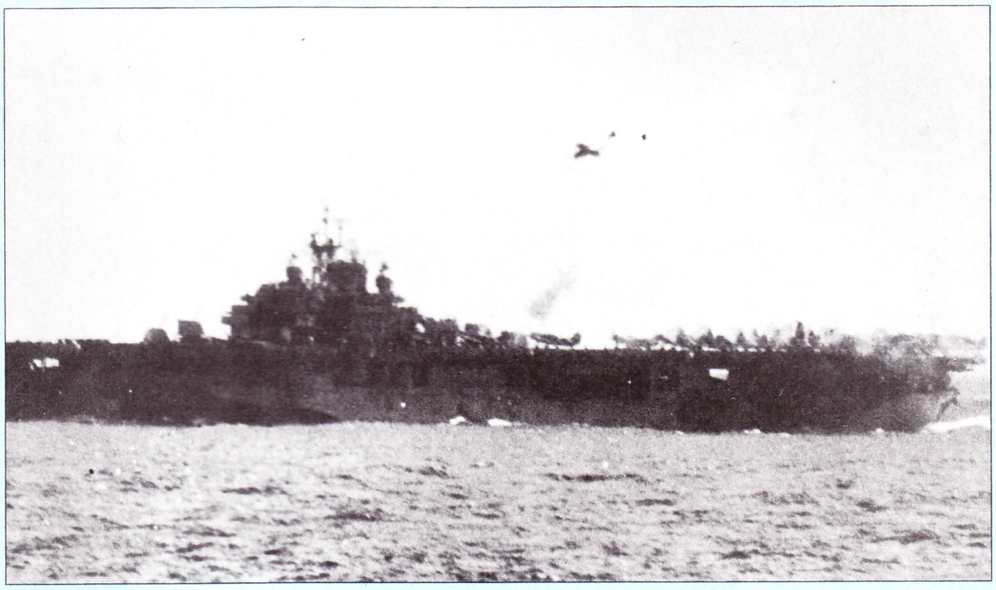
Like other complex Japanese battle plans, it went wrong almost from the beginning. Off Palawan Force 'A' was ambushed by two US submarines, which radioed the news and also torpedoed three heavy cruisers. Admiral Kurita's ships came under heavy air attack as they passed through the Sibuyan Sea, and eventually the mighty *Musashi* succumbed to an estimated total of 19 torpedo hits. However, her sister *Yamato* and the smaller battleships *Nagato, Kongo* and *Haruna* survived and continued to plough towards San Bernardino Strait.

Thanks to a mix-up in communications, the US fast carriers left the small escort carriers off Samar to face a ferocious bombardment from Kurita's ships while they chased after Ozawa's empty carriers. Fortunately for the Americans their 'jeep carriers', destroyers and destroyer-escorts put up such a stout resistance that Kurita eventually withdrew and missed the chance to destroy the vulnerable invasion force.

The Americans now took a terrible revenge on the Japanese. Ozawa's carriers were hunted down off Cape Engano: the *Chitose, Chiyoda, Zuikaku* and *Zuiho* were all sunk. While trying to force their way through Surigao Strait Nishimura's and Shima's forces came under a withering night attack from Admiral Oldendorf's old battleships, some of them salvaged veterans of Pearl Harbor, and were all but wiped out.

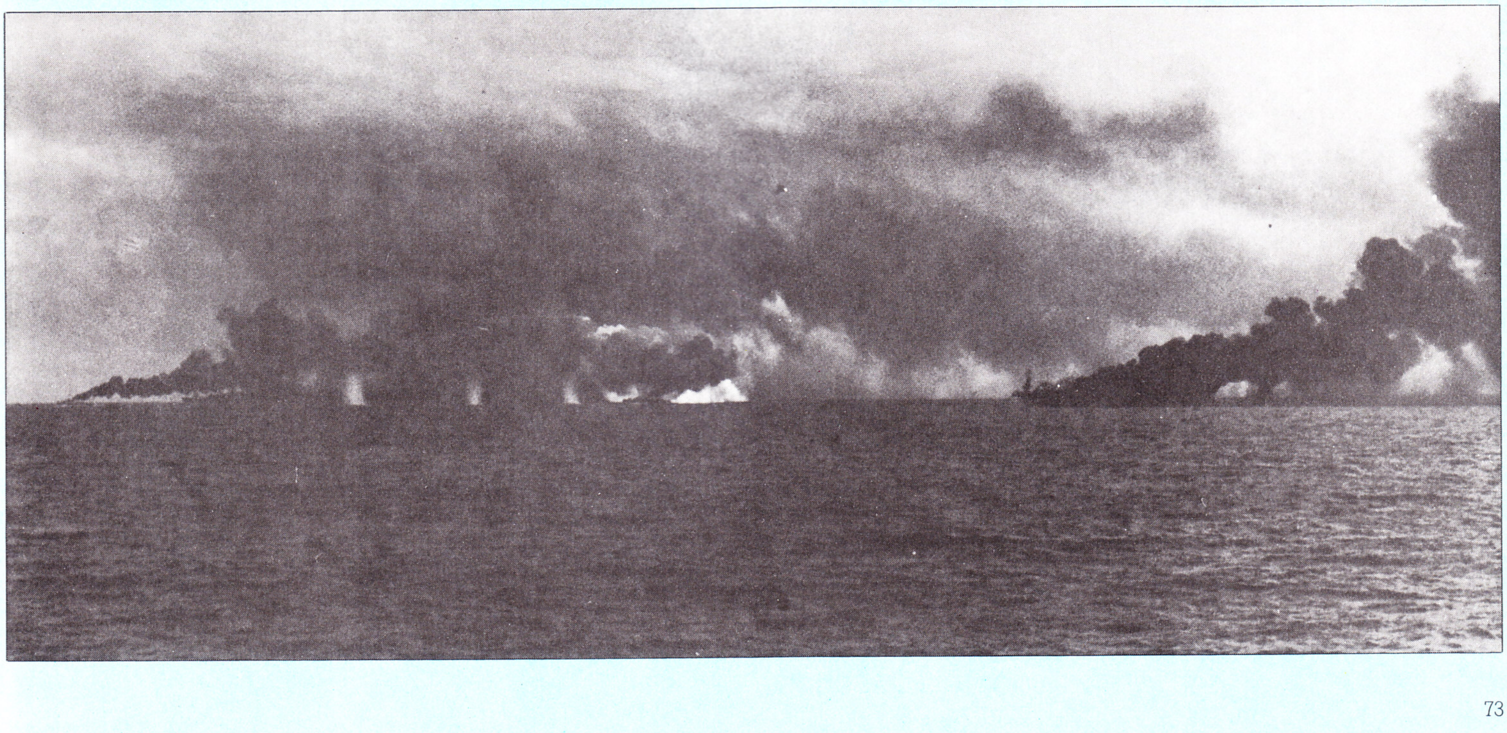
Leyte was the end of the Imperial Japanese Navy as an effective force. With no fuel for operations and no aircrew to man new aircraft, the remaining carriers were reduced to swinging idly at their moorings, waiting for the inevitable air attacks which would sink them.

***A signalman on the flight deck of a carrier of the Fast Carrier Group, with a 'Washington'-class battleship in the background.***



***Right: A blazing kamikaze plane hurtles towards the flight deck of the*** Essex ***as she vainly tries to alter course.***

***Below: Japanese shells falling among the escort carriers of Carrier Division 25 during the battle off Samar. On the right*** St Lô ***can be seen burning.***



USA

# USS *Bogue*

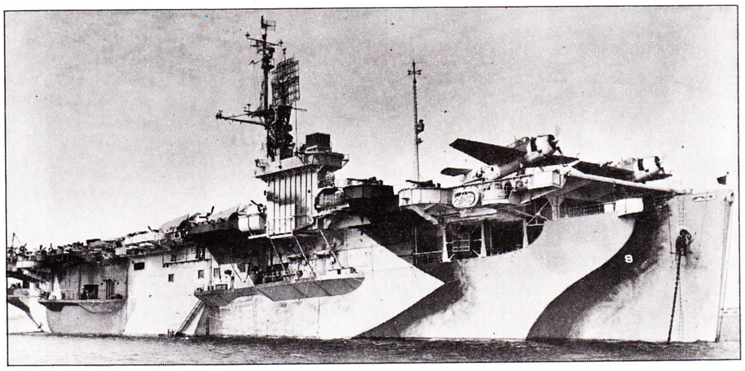
The urgent need for air cover for convoys in the Battle of the Atlantic was met by converting mercantile hulls into small aircraft-carriers. In the summer of 1941 both the British and the Americans converted merchantmen into the first experimental 'escort carriers' or CVEs, and when these proved their worth orders went out for the first production class of 21 CVEs from US shipyards. Of these 11 went straight to the Royal Navy as the 'Attacker' class, while the remainder became the US Navy's 'Bogue' class. Being conversions of partially completed hulls, the 'Bogue' class was a great improvement on the prototypes, and had a full-length hangar, with two centreline lifts. The USS **Bogue** (CVE.9) and her sisters *Card* (CVE.11) and *Core* (CVE.13) even had two catapults. They carried 28 aircraft, and the *Bogue* was launched in January 1942.

With a good outfit of air-warning radar and more space than the destroyers and frigates, the escort carriers made good flagships for 'hunter-killer' or anti-submarine support groups, which were being established in the autumn of 1942. The *Bogue* and her support group sank no fewer than 13 U-boats, while planes from her sisters *Card, Core, Block Island* and *Croatan* helped to sink another 20.

The USS *Bogue* joined the Atlantic Fleet in February 1943 as the Battle of the Atlantic reached crisis point. On her fourth crossing of the Atlantic her aircraft sank their first U-boat; two more followed on her next trip. On the seventh cruise, late in July 1943, her aircraft sank one U-Boat, and one of her escorting destroyers sank another.

The worst point of the battle was now over, and the tide had turned against the U-boats. The hunter-killer groups could not take the offensive against U-boats farther out in the Atlantic, and in November-December 1943 the *Bogue* and her group accounted for three U-boats. After a short break early in 1944 to ferry aircraft to the UK she returned to submarine-hunting, and in March helped to sink *U-575*. Three more U-boats were sunk by September 1944, when the *Bogue* returned to the United States for a period on training duties. Her last hunter-killer mission in April 1945 accounted for the last of 13 U-Boats, *U-546*, when she was operating as part of Captain G. J. Dufek's Second Barrier Force.

In the closing months of the war the *Bogue* was sent to the Pacific, ferrying aircraft and stores to outlying garrisons, but with the collapse of Japan she was re-assigned to the 'Magic Carpet' operations, ferrying PoWs and servicemen back to the United States.



***The escort carrier* Bogue *(CVE.9) with Grumman Avenger TBFs on her wooden flight deck.***

### Specification

**USS *Bogue* (CVE.9)**

**Displacement:** 11,000 tons standard, 15,400 tons full load

**Dimensions:** length 151.1 m (495 ft 8 in) overall; beam 34.0 m (111 ft 6 in) over flight deck; draught 7.92 m (26 ft 0 in)

**Machinery:** 1-shaft geared steam turbine delivering 6340 kW (8,500 shp)

**Speed:** 18 knots

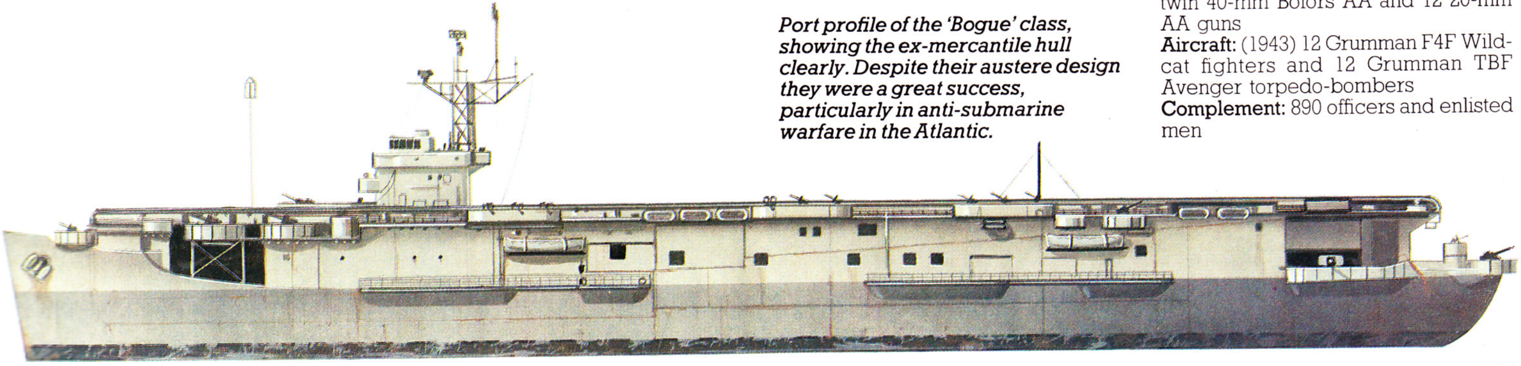
**Armour:** none

**Armament:** two 127-mm (5-in) AA, four twin 40-mm Bofors AA and 12 20-mm AA guns

**Aircraft:** (1943) 12 Grumman F4F Wildcat fighters and 12 Grumman TBF Avenger torpedo-bombers

**Complement:** 890 officers and enlisted men

***Port profile of the 'Bogue' class, showing the ex-mercantile hull clearly. Despite their austere design they were a great success, particularly in anti-submarine warfare in the Atlantic.***



USA

# USS *Sangamon*

The conversion of escort carriers was given top priority in 1942, but the rate at which these useful utility carriers could be brought into service was limited by the number of hulls available. Four newly-built US Navy oilers, the *Sangamon* (AO.28), *Santee* (AO.29), *Chenango* (AO.31) and *Suwannee* (AO.33), were taken out of commission in January 1942, reclassified as AVGs (Aircraft Escort Vessels) and were immediately stripped of superstructures and fittings for a conversion lasting six to eight months.

Despite being an adaptation, the 'Sangamon' class was more successful than the earlier escort carriers, being larger and faster. Designed as tankers, they had their machinery right aft, and thus the small smoke-ducts caused less interference with flying operations. Provision was made for two catapults, although the second unit was not installed until 1944, and a number of large openings in the sides provided good ventilation for the hangar.

The *Santee* (AVG.29, later CVE.29) was the first to be commissioned, on 24 August 1942, followed a day later by the USS **Sangamon** (CVE.26); the *Suwannee* (CVE.27) was commissioned on 24 September, five days after the *Chenango* (CVE.28). The acute shortage of carriers in late 1942 and early 1943, combined with their good turn of speed and aircraft capacity meant that these new carriers were used with the main fleet more than other CVEs, and frequently operated together. All four supported the landings in North Africa in October and November 1942, and then transferred to the Pacific, where they operated with CarDiv 22 in the South Pacific. The *Santee* returned to the Atlantic in March 1943, operating south of the Azores and off the coast of Brazil with a hunter-killer group, but rejoined her sisters in the Pacific in February 1944, as the great 'island-hopping' drive across the Pacific got under way.

All four took part in the Battle of Leyte Gulf, forming 'Taffy One' (under Rear Admiral Thomas L. Sprague) as part of Task Group 77.4. On 25 October the *Santee* was badly damaged by a *kamikaze* attack, and shortly afterwards by a torpedo hit from the submarine *I-56*, but managed to survive. Then a *kamikaze* hit the *Suwannee*, having missed the *Sangamon*. In spite of these hits all three were operational by the spring of 1945. The *Sangamon* was badly damaged by a *kamikaze* hit off Okinawa on 4 May 1945, and lost 11 dead, 21 seriously wounded and 25 missing, but like her sisters, proved rugged enough to be returned to service.

### Specification

**USS *Sangamon* (CVE.26)**

**Displacement:** 10,500 tons standard, 23,875 tons full load

**Dimensions:** length 168.71 m (553 ft 6 in) overall; beam 34.82 m (114 ft 3 in) over flight deck; draught 9.32 m (30 ft 7 in)

**Machinery:** 2-shaft geared steam turbines delivering 10070 kW (13,500 shp)

**Speed:** 18 knots

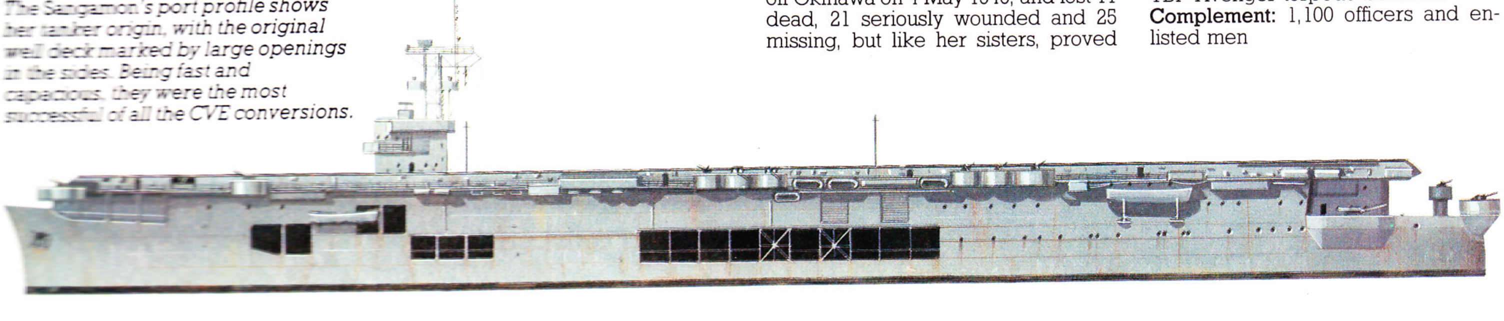
**Armour:** none

**Armament:** two 127-mm (5-in) AA, two quadruple 40-mm Bofors AA, seven twin 40-mm Bofors AA and 21 20-mm AA guns

**Aircraft:** (1942) 12 Grumman F4F Wildcat fighters, nine Douglas SBD Dauntless dive-bombers and nine Grumman TBF Avenger torpedo-bombers

**Complement:** 1,100 officers and enlisted men

***The Sangamon's port profile shows her tanker origin, with the original well deck marked by large openings in the sides. Being fast and capacious, they were the most successful of all the CVE conversions.***



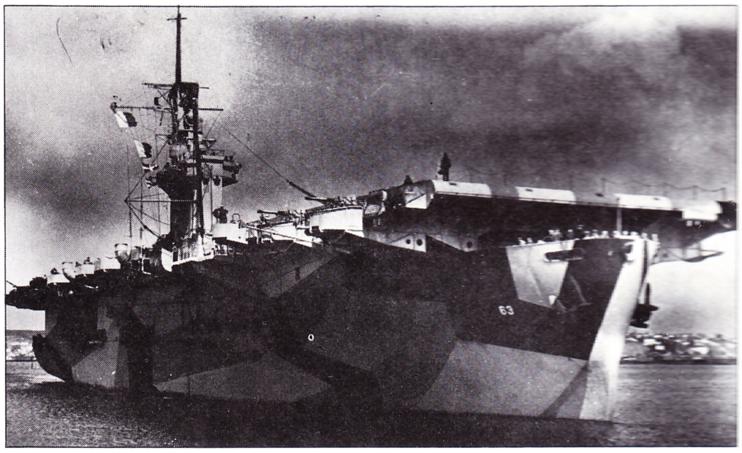
USA

# USS *St Lô*

The success of the converted CVEs led to a fresh design being prepared 'from the keel up', using a mercantile design as a basis but tailoring it to meet CVE needs, rather than adapting a hull on the slipway. These adaptations were more concerned with ease of construction than any radical improvement in operational capability. In all, 50 units of the 'Casablanca' class (CVE.55-104) were authorized late in 1942. Although the flight deck was short (500 ft/152.4 m by 108 ft/32.9 m), two lifts and a catapult were provided, and as there were two propeller shafts there was greater manoeuvrability than with one shaft. To speed up manufacture, triple-expansion steam machinery was chosen, but in other respects the 'Casablanca' design took the best of the 'Sangamon', 'Bogue' and 'Prince William' classes, and was a considerable success.

The USS ***St Lô*** (CVE.63) was laid down as the *Chapin Bay* (AVG.63) at Henry Kaiser's Vancouver shipyard in January 1943, but in April she was renamed *Midway* in honour of the recent battle, and entered service under that name in October 1943. The name was then allocated to a much bigger carrier, as it was considered too important for such a minor warship, and on 15 September 1944 CVE.63 became the USS *St Lô*. The little carrier had already made two ferry trips out to the Pacific and had supported the amphibious landings in Saipan, Eniwetok, Tinian and Morotai. In October 1944 she formed part of 'Taffy Three', part of the vast armada which fought the Battle of Leyte Gulf. 'Taffy Three', the most northern group of escort carriers covering the amphibious landing, had already suffered a gruelling bombardment from Japanese surface warships for the best part of 3 hours during the morning of 25 October 1944. After a lull of about 1 hour the *kamikazes* made a low-level attack, five Zeros coming in at low level before climbing rapidly to 1525 m (5,000 ft) and then diving straight onto the flight deck. One of a pair attacking the *Fanshaw Bay* suddenly switched to the *St Lô*, striking her flight deck aft. The two bombs slung underneath the Zero set off gasoline, bombs and ammunition in the hangar, and wrecked the ship.

The *kamikaze* hit at 10.53, and five minutes later a huge explosion devastated the carrier. She sank about 1 hour later, with 100 dead and many injured, the first American ship sunk by *kamikaze* attack.



*The new escort carrier* Midway *(CVE.63), which was subsequently renamed* St Lô *to release the name for a bigger carrier.*

## Specification

**USS *St Lô* (CVE.63)**

**Displacement:** 7,800 tons standard, 10,400 tons full load

**Dimensions:** length 156.13 m (512 ft 3 in) overall; beam 39.92 m (108 ft 0 in) over flight deck; draught 6.86 m (22 ft 6 in)

**Machinery:** 2-shaft vertical triple-expansion delivering 6715 kW (9,000 ihp)

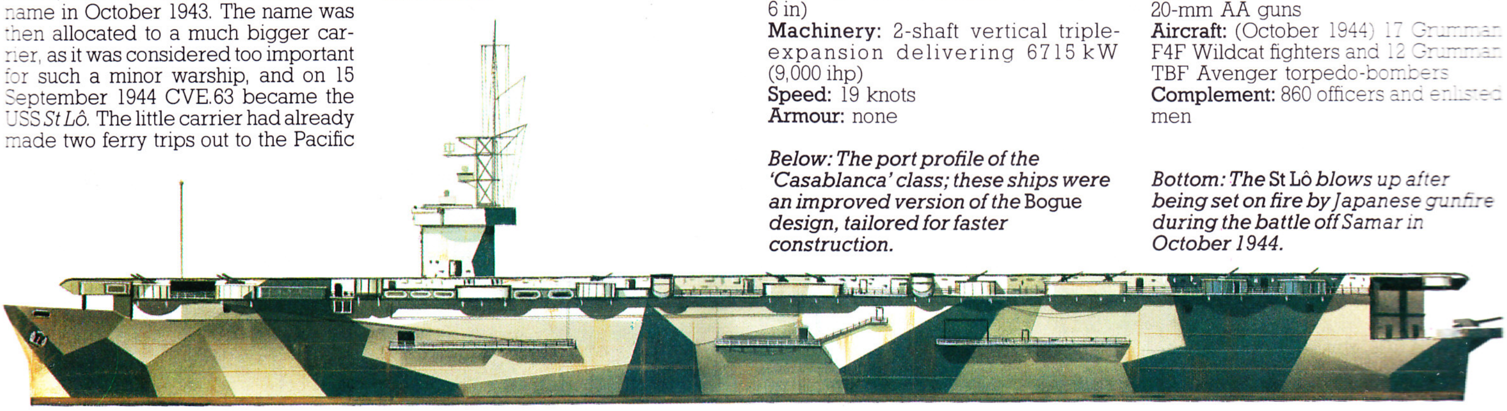
**Speed:** 19 knots

**Armour:** none

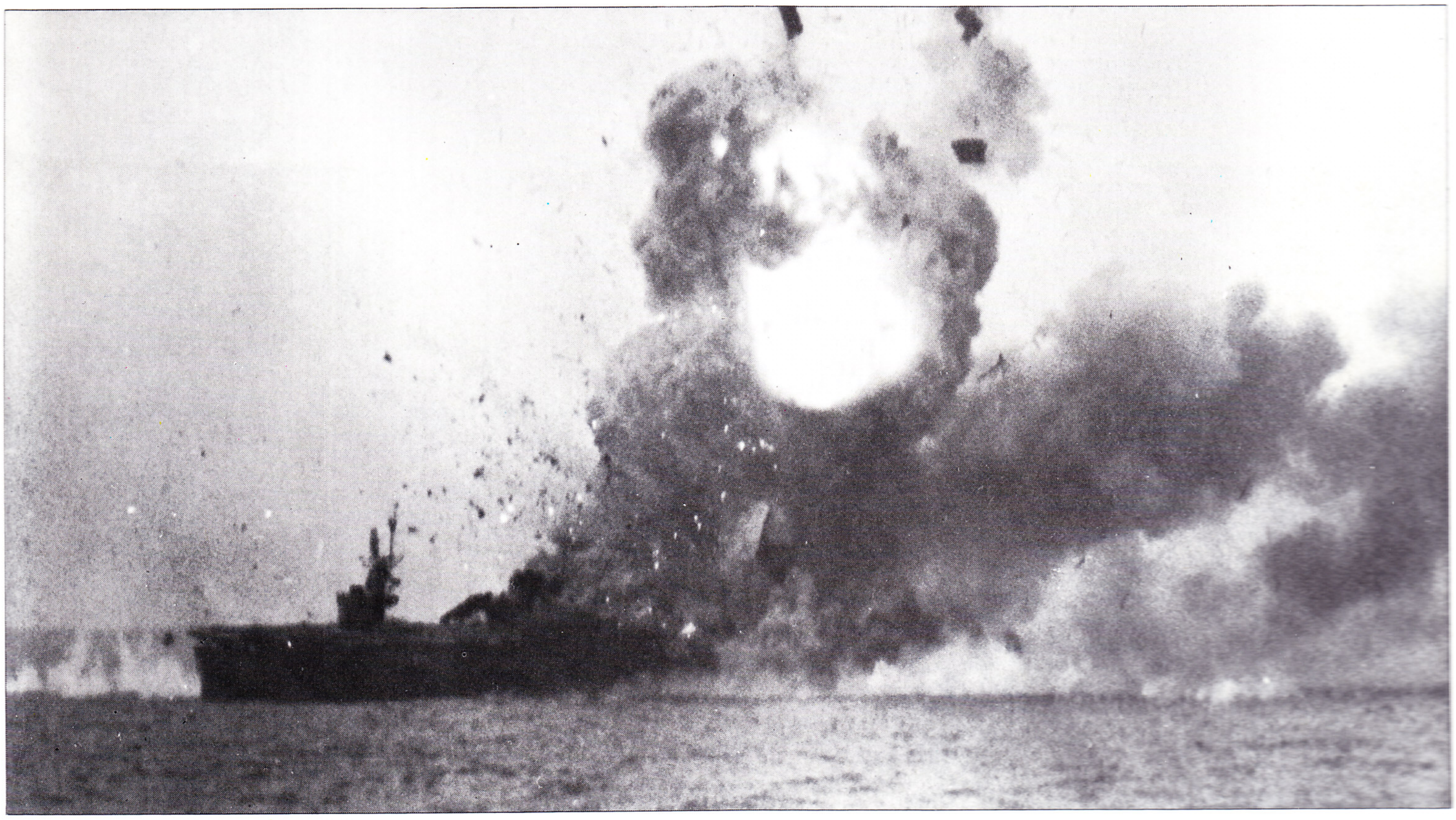
**Armament:** one 127-mm (5-in) AA eight twin 40-mm Bofors AA and 20 20-mm AA guns

**Aircraft:** (October 1944) 17 Grumman F4F Wildcat fighters and 12 Grumman TBF Avenger torpedo-bombers

**Complement:** 860 officers and enlisted men

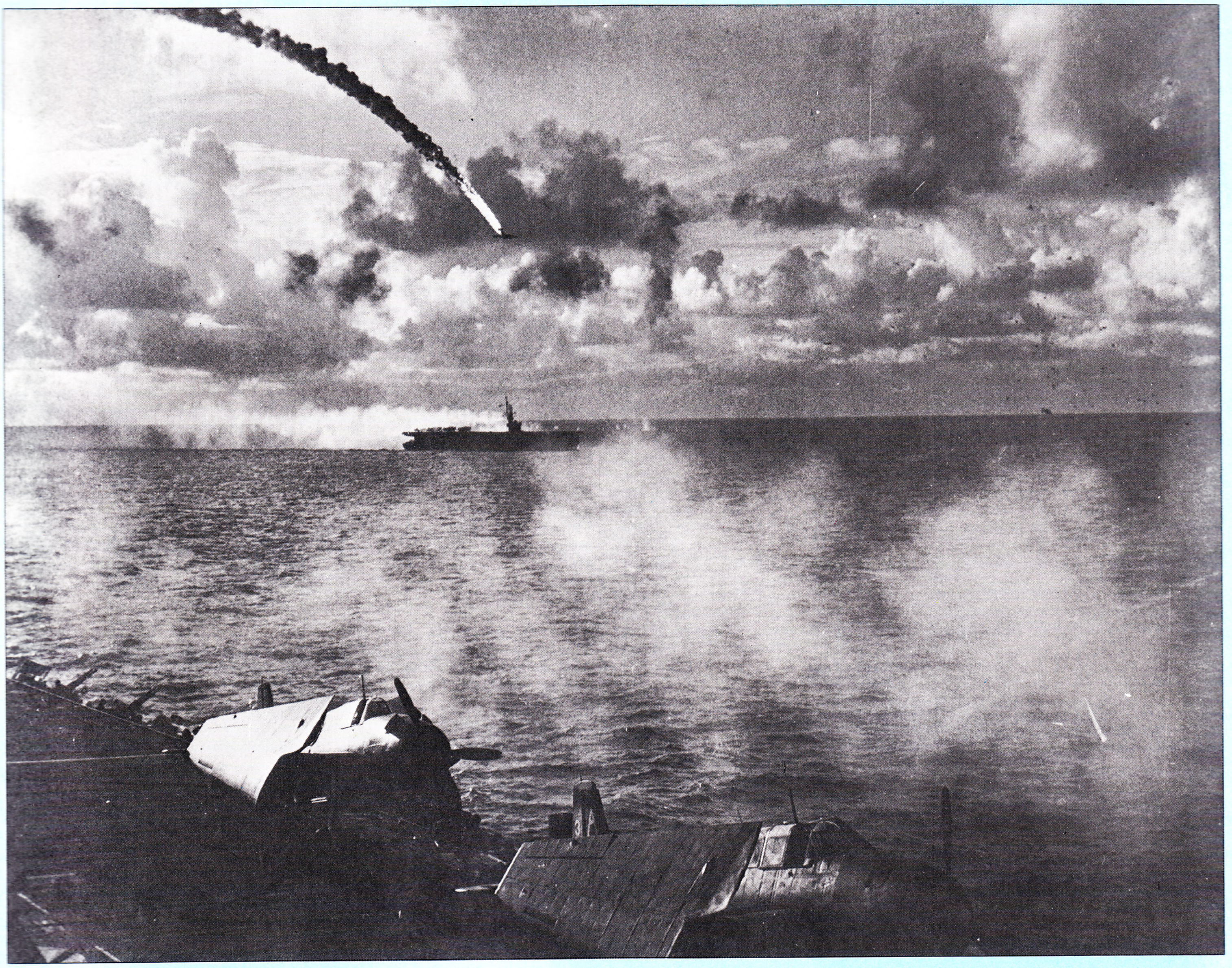


*Below: The port profile of the 'Casablanca' class; these ships were an improved version of the* Bogue *design, tailored for faster construction.*



*Bottom: The* St Lô *blows up after being set on fire by Japanese gunfire during the battle off Samar in October 1944.*

# Battle of the Philippine Sea



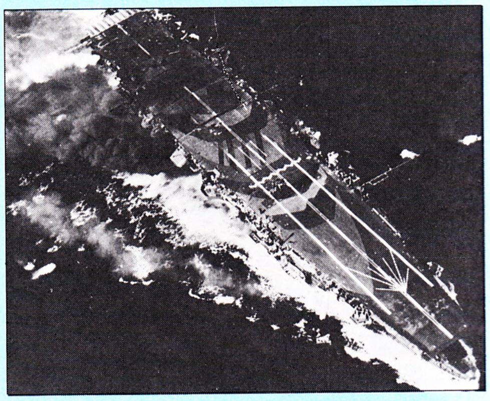
The invasion of Saipan by American forces in mid-June 1944 forced the Japanese to react in strength. The reason was quite simple: from bases in the Marianas Islands American bombers would be able to bomb targets in Japan itself. To avoid this, the Imperial Japanese Navy decided to throw in its remaining carriers and trained aircrews.

Admiral Jisaburo Ozawa, commanding the newly established First Mobile Fleet, planned to put large numbers of land-based aircraft into the islands of Guam, Yap and Rota. These would attack the US carriers west of Saipan, greatly outnumbering the carrier aircraft. As his lightly constructed carrier aircraft had just over 320 km (200 miles) more range than the US carrier planes he would be able to launch a carrier strike outside the range of the American aircraft, attack the fast carriers, refuel and rearm at Guam, and attack a second time on the way back. In theory the carrier strikes should have been very destructive, for the American carriers would already have suffered severe damage from the land strikes.

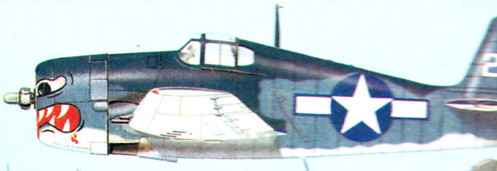
In practice it went very wrong. Right at the beginning the commander of the land-based air forces, Vice Admiral Kakuta, failed to inflict significant damage on the carrier aircraft. Instead the American Admiral Raymond Spruance had launched heavy attacks on the Japanese airfields, wiping out the aircraft on Guam and Rota. What remains unexplained to this day is the fact that Kakuta failed to warn Ozawa of this failure in the plan, and continued to reassure him that the Americans were suffering a heavy rate of attrition. Nor were the Americans short of intelligence about Ozawa's movements, for their submarines had spotted the carriers moving through the Philippines.

The Japanese carrier force was out in strength: the light carriers *Zuiho*, *Chitose*, *Chiyoda*, *Hiyo*, *Junyo* and *Ryuho* and the fleet carriers *Taiho*, *Shokaku* and *Zuikaku*, as well as five battleships, 12 cruisers and 27 destroyers, and 24 submarines. But this force was dwarfed by Task Force 58: the light carriers *Langley*, *Cowpens*, *San Jacinto*, *Princeton*, *Monterey*, *Cabot*, *Belleau Wood* and *Bataan*, the fleet carriers *Hornet*, *Yorktown*, *Bunker Hill*, *Wasp*, *Enterprise*, *Lexington* and *Essex*, as well as seven battleships, 21 cruisers, 62 destroyers and 25 submarines. Even these heavy odds were lengthened by the superior training of the American aircrews, for the Japanese pilot-training programme had totally failed to keep up with wartime attrition, and many of Ozawa's

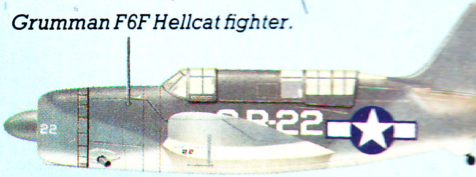
*A Japanese aircraft plummets into the sea over the small carrier* Kitkun Bay *(CVE.71) during the invasion of Saipan in June 1944.*



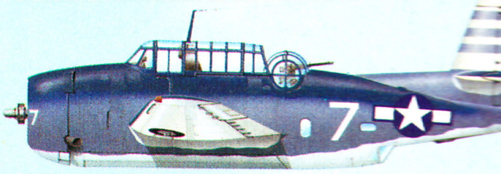
*The Japanese carrier* Zuiho *under attack from the air group of the* Enterprise *during the Battle of the Philippine Sea. Note the unusual camouflage and deck markings.*



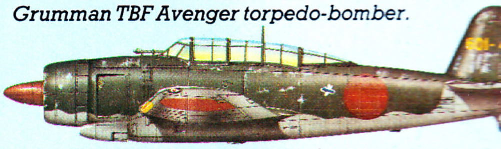
*Grumman F6F Hellcat fighter.*



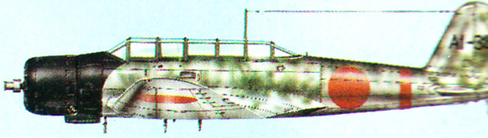
*Curtiss SB2C Helldiver dive-bomber.*



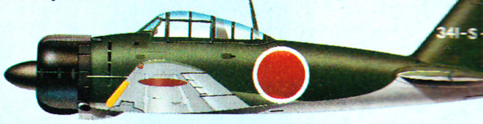
*Grumman TBF Avenger torpedo-bomber.*



*Yokosuka D4Y1 'Judy' dive-bomber.*



*Nakajima B5N1 'Kate' torpedo-bomber.*



*Mitsubishi A6M3 'Zero', based in the Philippines.*

pilots were barely capable of landing on board their carriers.

Spruance divided his force into four task groups (TGs 58.1, 58.2, 58.3 and 58.4) and a Battle Line (TG 58.7) under Admiral Willis A. Lee. To attack the carriers the Japanese aircraft would first have to fly through a barrage of anti-aircraft fire from the Battle Line, and then fight off each carrier task group's combat air patrol and face the fire from their escorts. The land attacks had done nothing to weaken this defence in depth, but Ozawa had no idea of what sort of opposition his pilots would be facing.

On 18 June the main Japanese force moved into position to the west of the Marianas, and detached the van force of three light carriers under Vice Admiral Takeo Kurita, with the intention of launching the first strikes next morning. When the Van Force launched its strike of 16 fighters and 53 bombers it was detected by the Battle Line on radar, giving time for the US carriers to launch every available fighter. They inflicted grievous losses on the Japanese (42 aircraft) and the only damage achieved was a bomb hit on the battleship *South Dakota*.

## The Marianas Turkey Shoot

A second strike was launched from the six carriers of the Main Body: 48 fighters and 62 bombers, but 10 minutes after the launch-sequence had begun, the US submarine *Albacore* torpedoed the carrier *Taiho.* Once again the massed anti-aircraft fire of the Battle Line slaughtered the air strike, shooting down 79 out of the 110 aircraft, and all that was achieved was a near-miss. A third strike of 47 aircraft managed to avoid the Battle Line but found very few targets, and lost only seven planes. A fourth strike launched from 11.30 also lost its way; only 33 out of 82 aircraft found TG 58.2, and suffered heavy losses.

The Japanese carriers had made the strongest possible effort and had failed to inflict more than trifling damage on TF 58. At 12.22 Ozawa suffered a further setback when the submarine USS *Cavalla* put four torpedoes into the *Shokaku.* She blew up and sank at 15.10, followed shortly afterwards by the *Taiho*. But Ozawa had no intention of giving up, for he still believed that Kakuta's land-based forces had inflicted heavy casualties, and he therefore felt that his 102 remaining aircraft could turn the tables on Spruance. In addition Kakuta had told him that many of the survivors of the carrier strikes had landed safely on Guam.

Next day the two opposing fleets were moving to the north west on roughly parallel courses. When Spruance learned of Ozawa's position it was late in the afternoon, and he was faced with a difficult choice. A strike against the Japanese carriers would be at maximum distance, and the return flight to the carriers would have to be made in darkness. Nevertheless at 16.20 he ordered an all-out strike by 85 fighters, 77 dive-bombers and 54 torpedo-bombers.

The Japanese could only launch 80 aircraft before TF 58's tempest overwhelmed them. The light carrier *Hiyo* was sunk by two torpedoes; the *Zuikaku, Junyo* and *Chiyoda* were badly damaged, and other ships were damaged. Ozawa managed to extricate the remnants of his forces without further loss, but he had lost what he knew to be the last chance of a decisive victory. His inexperienced pilots had been shot down in such numbers that the American pilots had called the air battle on 19 June the 'Great Marianas Turkey Shoot'. Even when stretched to the limit, the US Navy's pilots were more skilled: after the strike on 20 June the aircraft returned to their carriers at 22.45, many of them virtually out of fuel. In a classic signal Vice-Admiral Mitscher ordered the carriers to turn on their landing lights, to make sure that the pilots could find a friendly deck in the darkness. Losses were heavy, but 116 aircraft landed safely. The remaining 80 crash-landed or 'ditched' nearby, allowing destroyers to pick up the majority of the aircrew.

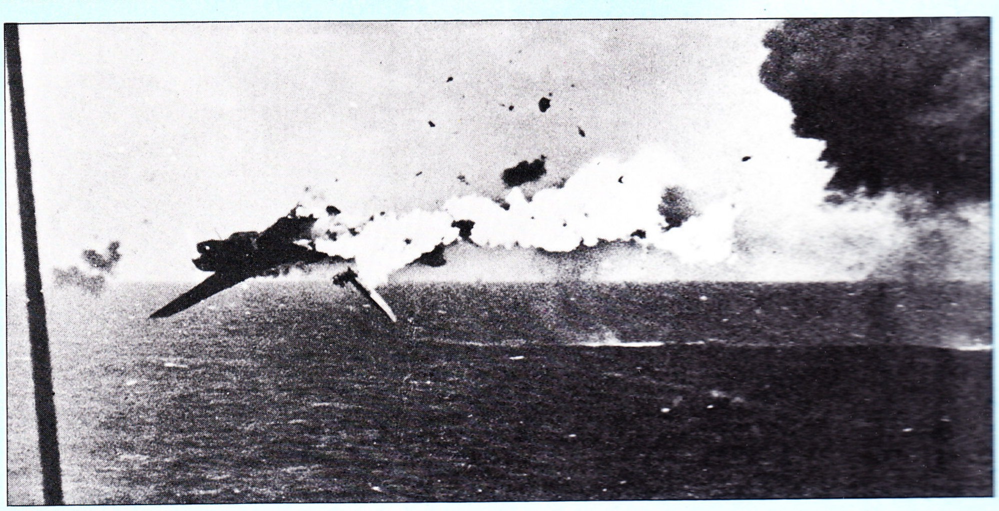
## Double talk, double think

In retrospect it is difficult to criticize Ozawa's handling of the battle. The major tactical error, attacking the Battle Line, was the result of the naval pilots' lack of experience. The extraordinary lies told by Kakuta led Ozawa to believe that his four strikes would have much more effect than they did, and he was even misled into believing that his aircraft were safe in Guam, whereas in fact they had been destroyed. Given those circumstances, and the fact that he was vastly outnumbered it would have been difficult to do better.

Even if Ozawa had been blessed with better luck and a more capable subordinate he would have needed a miracle to give him victory against TF 58. The best that could have happened would have been a few US carriers badly damaged or even sunk. That would have resulted in a short respite, but the Japanese were now being overwhelmed by sheer numbers. Not only were trained pilots in short supply; even the raw materials and oil for which Japan had gone to war were difficult to transport to Japan, because of the lack of shipping. It was now impossible for Japanese shipyards to maintain shipping at pre-war levels. The fleet could not get sufficient refined oil, and was forced to use volatile oil from Borneo – a major cause of the explosions which destroyed the *Taiho* and *Shokaku*.

On the American side there were bitter recriminations against Spruance, particularly by Admiral William Halsey and his supporters. They felt that the caution of Spruance had lost TF 58 the opportunity to sink all Ozawa's carriers, and thus eliminate the Imperial Japanese Navy. What the critics could not accept was that Spruance's dispositions at all times took account of the overriding need to prevent Ozawa from evading his task groups and getting at the vulnerable amphibious forces off Saipan. No mercy would have been shown to Spruance if his carriers had lost Ozawa, and massive losses had thus been inflicted on the invasion force. The critics tend to overlook the fact that only three months later at Leyte Halsey swallowed the bait offered by Ozawa. Although the Japanese carriers were severely punished the main force under Admiral Kurita got through to the invasion area, and only the desperate bravery of the defending light carriers and escorts saved the Americans from disaster. Historians have been kinder to Spruance than his fellow admirals in 1944.

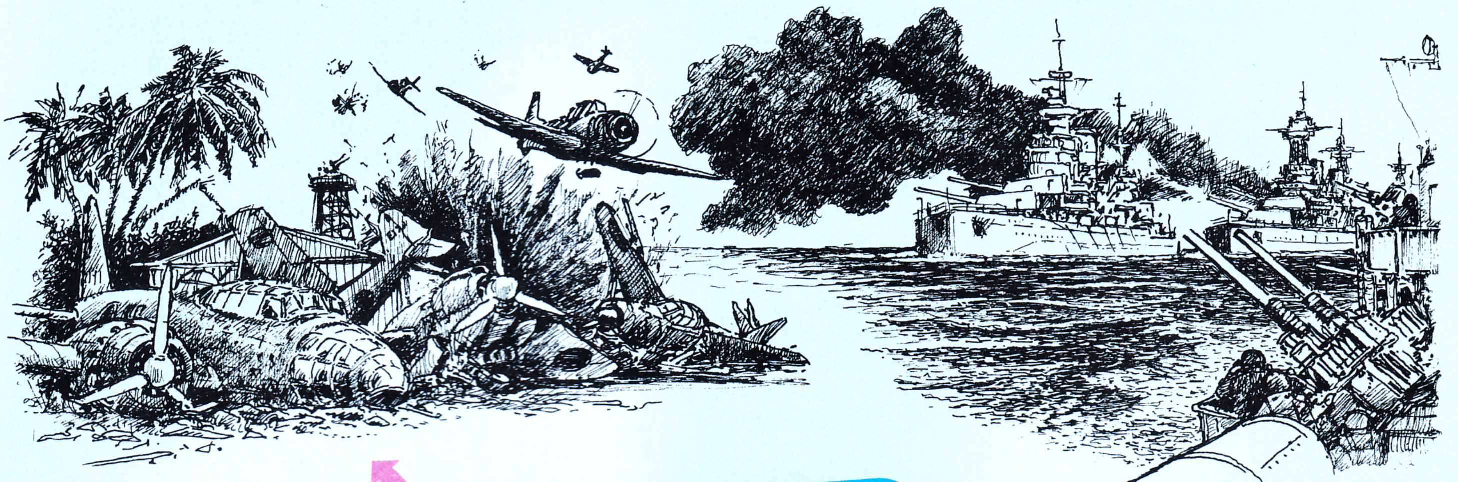
*A bomber loses a wing after being struck by a 5-inch shell from the carrier* Yorktown *off the Island of Kwajalein.*



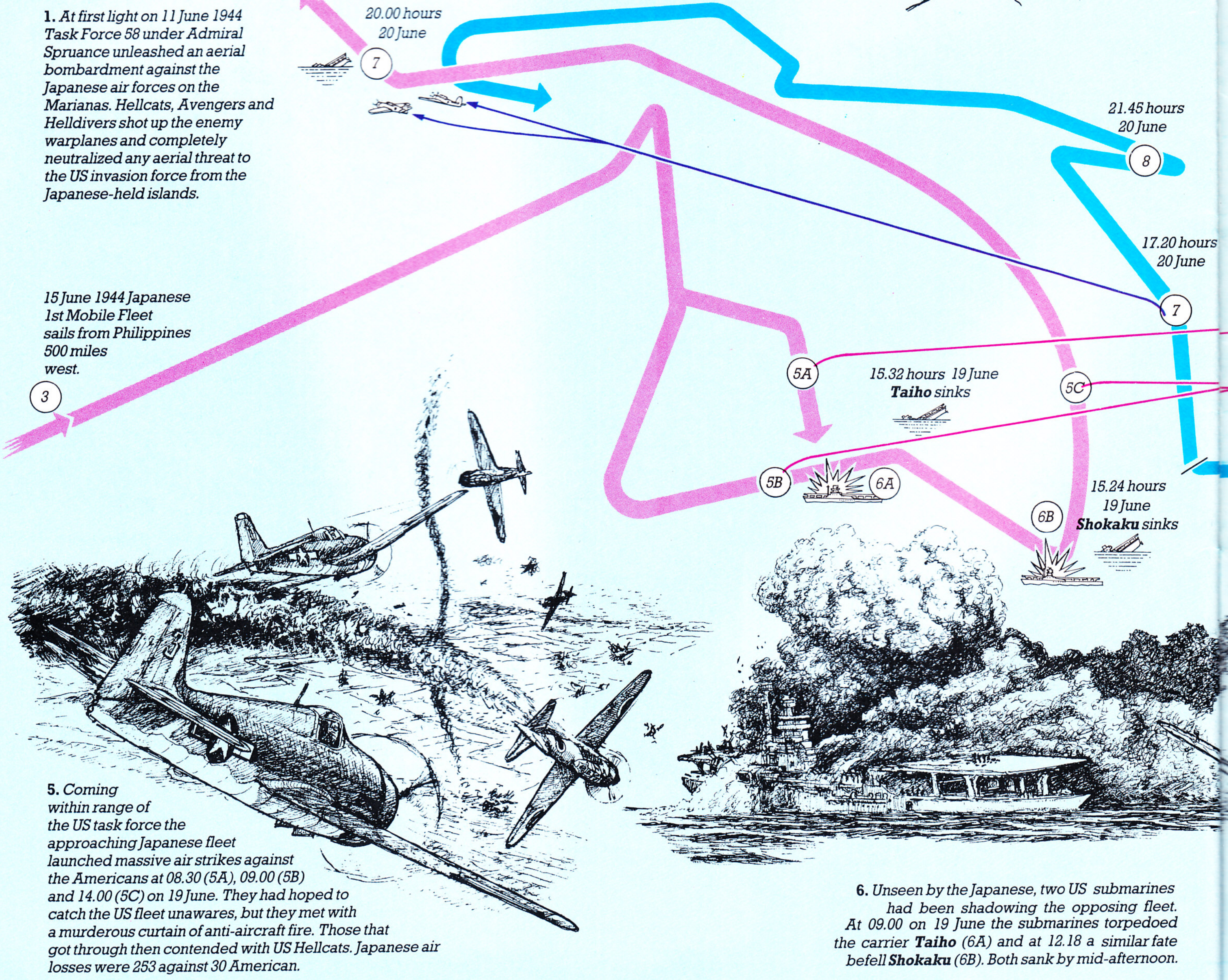
# Diary of the Marianas Turkey Shoot

***The Japanese paid dearly for their attempt to obstruct the invasion of the Marianas. Task Force 58 under Admiral Spruance held off and then struck back at Ozawa's First Mobile Fleet. While the American victory may not have seemed decisive in view of the fact that the Japanese managed to extricate most of their force, the fact that the majority of trained Japanese aircrew lay with their aircraft under the Philippine Sea meant that the Imperial Navy would never again be able to wage effective carrier war.***

**2.** *After two days of aerial assault US naval units closed in to bombard Japanese ground defences. Seven battleships and more than 20 cruisers pounded the enemy positions for 48 hours prior to the assault.*



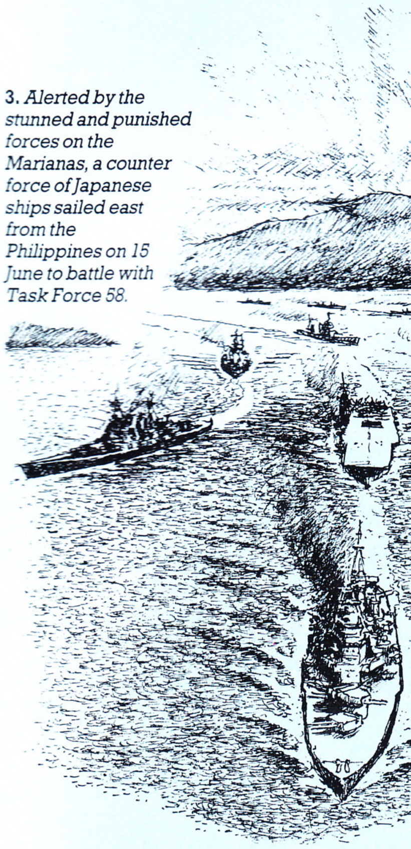
**1.** *At first light on 11 June 1944 Task Force 58 under Admiral Spruance unleashed an aerial bombardment against the Japanese air forces on the Marianas. Hellcats, Avengers and Helldivers shot up the enemy warplanes and completely neutralized any aerial threat to the US invasion force from the Japanese-held islands.*



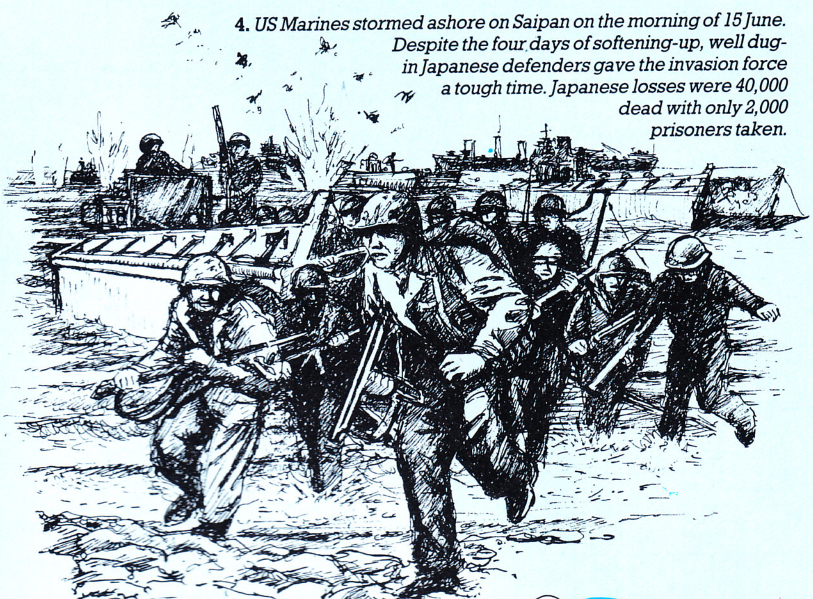
*15 June 1944 Japanese 1st Mobile Fleet sails from Philippines 500 miles west.*

**5.** *Coming within range of the US task force the approaching Japanese fleet launched massive air strikes against the Americans at 08.30 (5A), 09.00 (5B) and 14.00 (5C) on 19 June. They had hoped to catch the US fleet unawares, but they met with a murderous curtain of anti-aircraft fire. Those that got through then contended with US Hellcats. Japanese air losses were 253 against 30 American.*

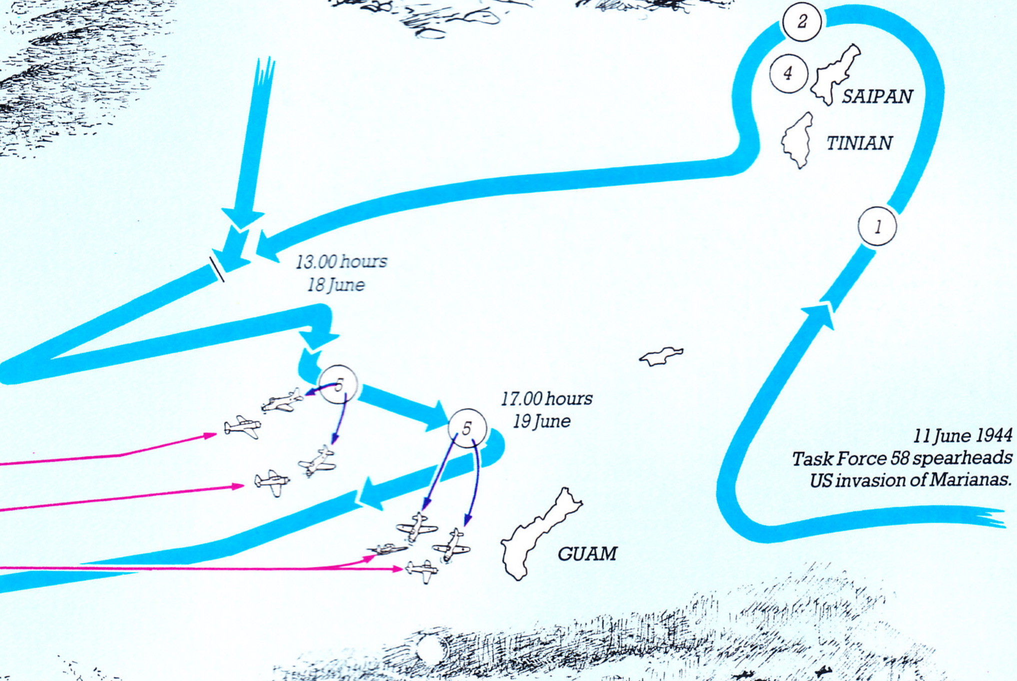
**6.** *Unseen by the Japanese, two US submarines had been shadowing the opposing fleet. At 09.00 on 19 June the submarines torpedoed the carrier* ***Taiho*** *(6A) and at 12.18 a similar fate befell* ***Shokaku*** *(6B). Both sank by mid-afternoon.*



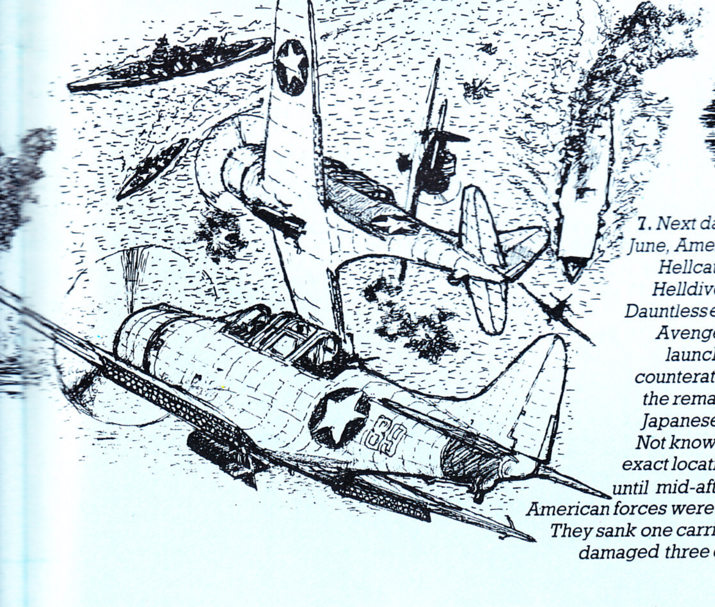
*3. Alerted by the stunned and punished forces on the Marianas, a counter force of Japanese ships sailed east from the Philippines on 15 June to battle with Task Force 58.*



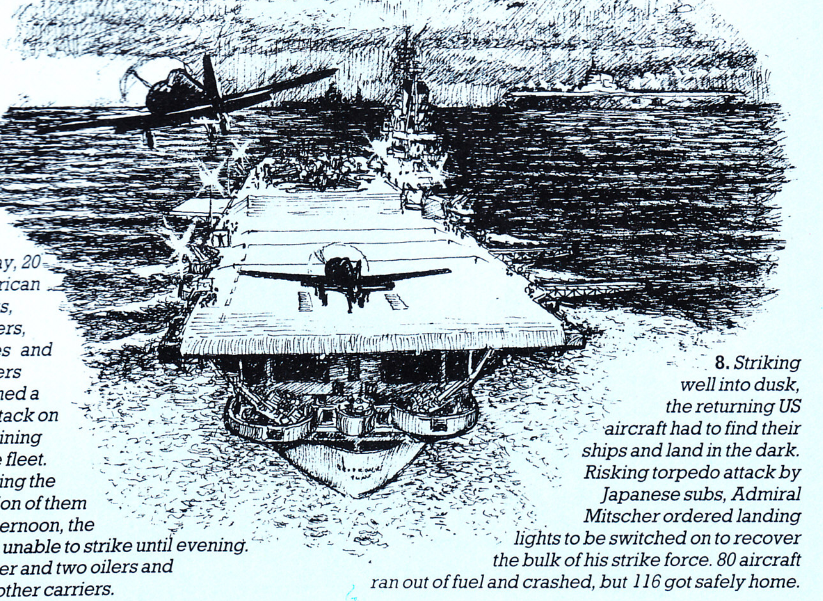
*4. US Marines stormed ashore on Saipan on the morning of 15 June. Despite the four days of softening-up, well dug-in Japanese defenders gave the invasion force a tough time. Japanese losses were 40,000 dead with only 2,000 prisoners taken.*



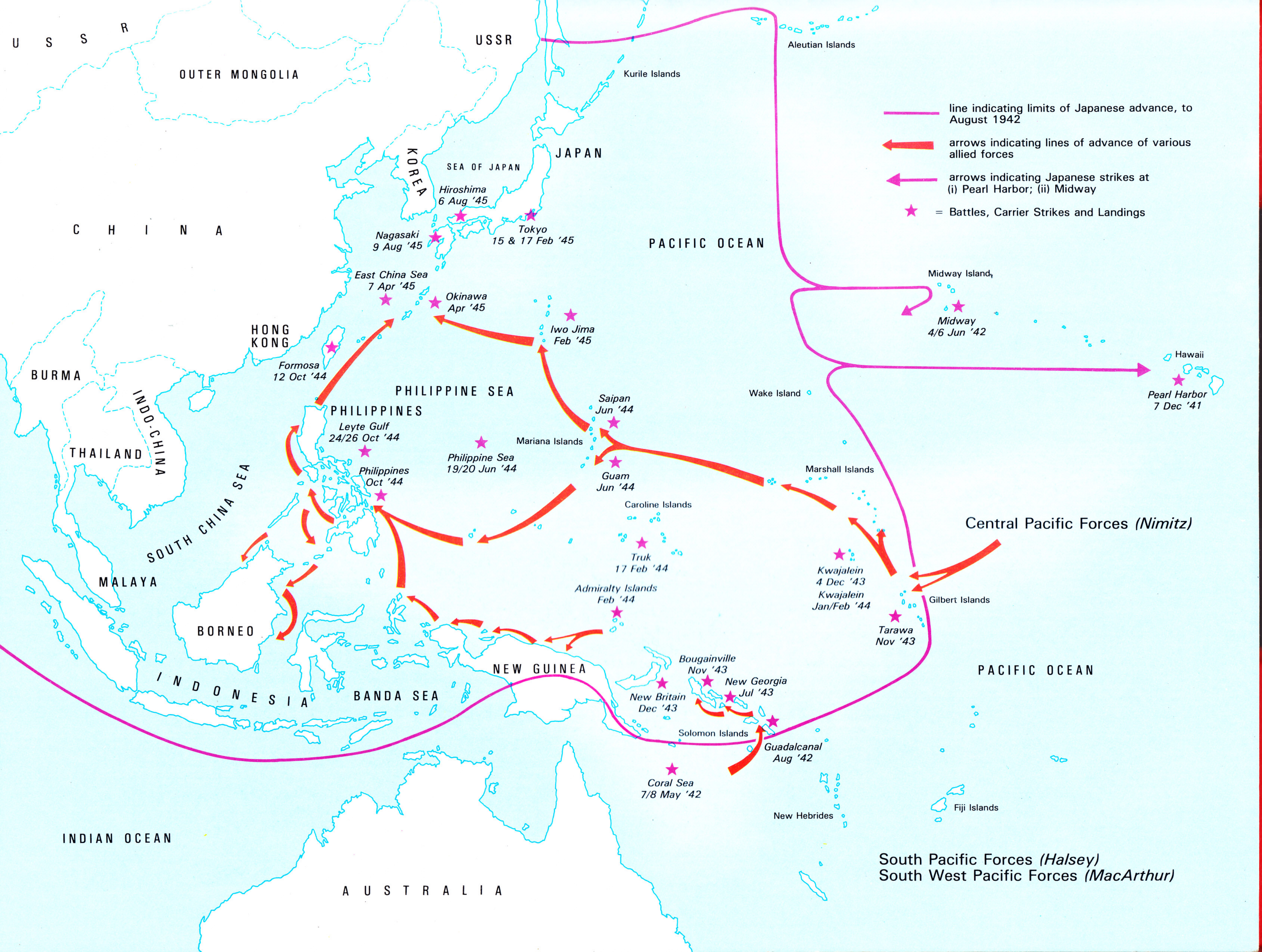
*11 June 1944 Task Force 58 spearheads US invasion of Marianas.*



*7. Next day, 20 June, American Hellcats, Helldivers, Dauntlesses and Avengers launched a counterattack on the remaining Japanese fleet. Not knowing the exact location of them until mid-afternoon, the American forces were unable to strike until evening. They sank one carrier and two oilers and damaged three other carriers.*



*8. Striking well into dusk, the returning US aircraft had to find their ships and land in the dark. Risking torpedo attack by Japanese subs, Admiral Mitscher ordered landing lights to be switched on to recover the bulk of his strike force. 80 aircraft ran out of fuel and crashed, but 116 got safely home.*


USSR
USSR
OUTER MONGOLIA
CHINA
KOREA
SEA OF JAPAN
JAPAN
Aleutian Islands
Kurile Islands
line indicating limits of Japanese advance, to August 1942
arrows indicating lines of advance of various allied forces
arrows indicating Japanese strikes at (i) Pearl Harbor; (ii) Midway
★ = Battles, Carrier Strikes and Landings
Hiroshima 6 Aug '45
Nagasaki 9 Aug '45
Tokyo 15 & 17 Feb '45
PACIFIC OCEAN
East China Sea 7 Apr '45
Okinawa Apr '45
Midway Island,
Midway 4/6 Jun '42
Iwo Jima Feb '45
HONG KONG
Formosa 12 Oct '44
BURMA
Hawaii
Pearl Harbor 7 Dec '41
PHILIPPINE SEA
PHILIPPINES
Saipan Jun '44
Wake Island
INDO-CHINA
THAILAND
Leyte Gulf 24/26 Oct '44
Mariana Islands
Philippine Sea 19/20 Jun '44
Philippines Oct '44
Guam Jun '44
Marshall Islands
SOUTH CHINA SEA
Caroline Islands
Central Pacific Forces (Nimitz)
Truk 17 Feb '44
Kwajalein 4 Dec '43
Kwajalein Jan/Feb '44
MALAYA
Admiralty Islands Feb '44
Gilbert Islands
BORNEO
Tarawa Nov '43
Bougainville Nov '43
NEW GUINEA
PACIFIC OCEAN
New Georgia Jul '43
New Britain Dec '43
INDONESIA
BANDA SEA
Solomon Islands
Guadalcanal Aug '42
Coral Sea 7/8 May '42
New Hebrides
Fiji Islands
INDIAN OCEAN
South Pacific Forces (Halsey)
South West Pacific Forces (MacArthur)
AUSTRALIA

## Armed Forces of the World

# Jordan

The ancient kingdom of Jordan has possessed an established army from the time when most European nations were still throwing sharpened stones at one another, and over the centuries the kingdom has remained a remarkable bastion of stability in a turbulent region. Today the Jordanian armed forces are still manned on an all-volunteer basis for well trained units that are now in a state of transition from what was once a British-orientated establishment into a more outward-looking formation using equipment from the USSR on one side and from the USA and UK on the other side of the superpower divide.

### The Jordanian army

In terms of equipment the Jordanian army is one of the most powerful in the Middle East, and is mechanized to a high degree. It has recently undergone a major re-equipment programme with new American M60 MBTs, and with new 155-mm and 203-mm self-propelled artillery, and still has some M60 MBTs to be delivered. However, the main tank force still consists of M47, M48 and Centurion MBTs, though these are currently being replaced by the British ROF Khalid MBT, an export model of the Chieftain MBT. These tanks are backed up by Ferret scout cars, a large force of about 850 M113 tracked APCs and a small remaining batch of Saracen wheeled APCs. Some towed artillery still remains, as do large numbers of heavy mortars and recoilless rifles, but air defence depends on a mix of 100 Vulcan 20-mm cannon, M42 40-mm self-propelled Bofors guns, Redeye and SA-7 'Grail' man-portable missiles, and a force of Improved HAWK, SA-6 'Gainful' and SA-9 'Gaskin' batteries. Anti-tank defence is provided by TOW and Dragon anti-tank missiles. The primary striking forces using these weapons are organized mainly at brigade strengths. One of these brigades is an independent Royal Guards Brigade, while the bulk of the armour is centred in the five armoured and six mechanized brigades. In recent years the army has been much concerned with internal security, chiefly concerning the activities of the PLO, and recently some 3,000 army volunteers have been involved on the Iraqi side in the Iran-Iraq conflict. Internally the army can call upon some 65,000 regular personnel, 3,550 well armed and comprehensively organized Mobile Police Force personnel and a further 7,500 Civil Militia.

### The Jordanian navy

The naval element of the Jordanian forces is small (300 personnel) and based at the southern port of Aqaba. It has nine small patrol craft with a further three about to be delivered.

### The Jordanian air force

The Jordanian air force has some 7,500 personnel, and is currently in the process of converting its three interceptor squadrons to a mix of Dassault-Breguet Mirage F.1s and Northrop F-5Es and F-5Fs, and the last few Northrop F-5As are about to be retired. A further F-5E squadron is devoted to the ground-attack role. At the same time all air force bases are being 'hardened' and extra dispersal fields are being constructed. SA-6 'Gainful' and SA-9 'Gaskin' missile sites are being established to defend the airfields alongside Improved HAWK missiles and gun installations. A single transport squadron uses an unusual mix of aircraft including Lockheed C-130 Hercules, CASA C-212 Aviocars and Rockwell Sabreliner 75As. The Royal Flight has a Boeing 727 and a Riley Dove for King Hussein's use. A large helicopter squadron is based on the Aérospatiale Alouette III, Sikorsky S-76s and a number of Hughes 500D trainers. Helicopters on order include 24 Bell AH-1S Cobras to be fitted with TOW anti-tank missiles. Training aircraft include Cessna T-37C jet trainers, a number of BAe Bulldogs and six Pitts S-2s; Jordan has one of the few air forces to operate this last type, a highly aerobatic trainer.

The full combat aircraft strength of the Jordanian air force is 94 aircraft. As far as is known none of these are used in Iraq, but some transport aircraft have been operated in support of Jordanian troops with the Iraqi forces. More Improved Hawk missiles have been offered by the United States for airfield defence to oust the ex-Soviet missiles now in service.

*The CASA C-212 Aviocar provides the light transport element of Jordan's single air transport squadron. The aircraft is well suited to 'hot and high' operations in the Middle East.*

### Order of Battle

**Army**

One independent Royal Guards Brigade
Five armoured brigades
Six mechanized brigades
Two infantry brigades
16 artillery battalions
Two anti-aircraft defence brigades
Three airborne battalions

**Air Force**

Three interceptor squadrons (F-5, Mirage F.1)
One strike squadron (F-5)
One OCU (F-5)
One transport squadron
One helicopter squadron
One Royal Flight

*Jordanian Khalid tanks are some of the most powerful armoured fighting vehicles in the Middle East. Essentially a late model Chieftain modified to suit Jordanian requirements, the Khalid has the latest and most accurate of fire control systems.*